SECTOR installation manual

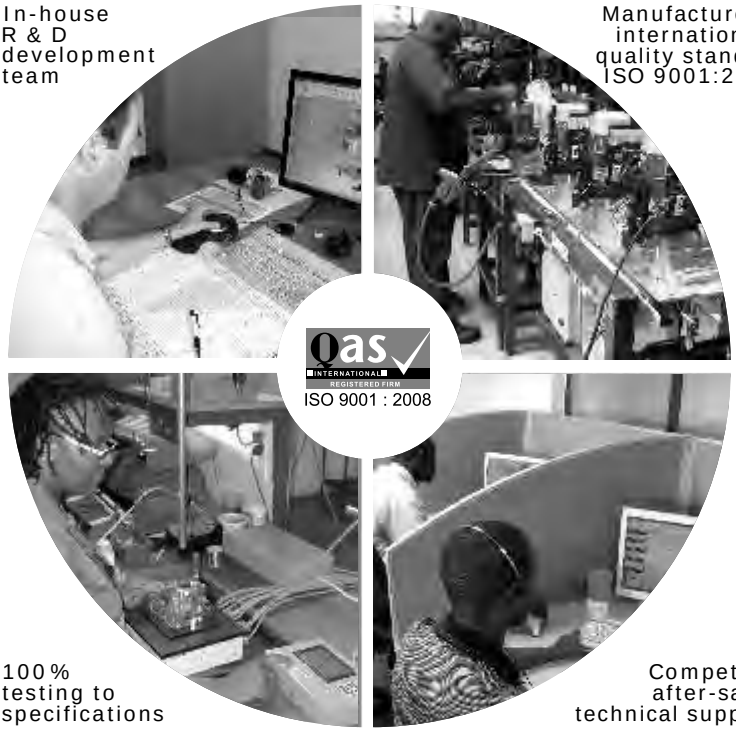
CENTURION

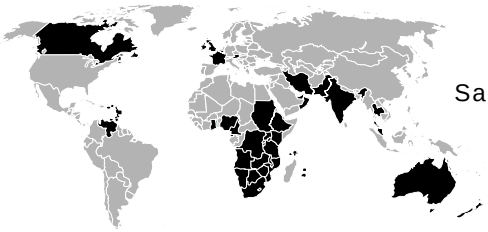
SECTOR™

HIGH-VOLUME INDUSTRIAL TRAFFIC BARRIER

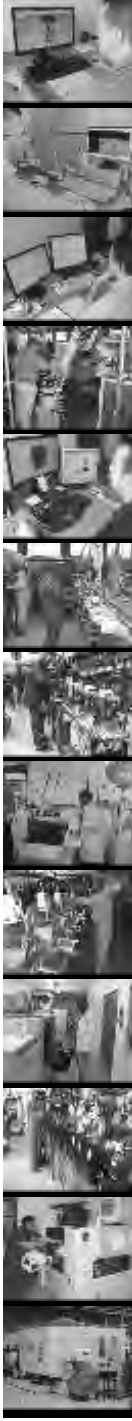
Company Profile

1986 1990 1995 1999 Centurion Systems today





Sales and technical support to over 50 countries worldwide



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Mechanical setup

These abbreviated instructions are for the experienced installer who needs a checklist to get a standard installation up and running in the minimum of time.

Detailed installation features and functions are referred to later in this manual.

step 1 Heed necessary site considerations Page 12

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IMPORTANT
Safety Instructions

ATTENTION

To ensure the safety of people, it is important that you read all the following instructions. Incorrect installation or incorrect use of the product could cause serious harm to people.

The installer, being either professional or DIY, is the last person on the site who can ensure that the operator is safely installed, and that the whole system can be operated safely.

Warnings for the installer

CAREFULLY READ AND FOLLOW ALL INSTRUCTIONS before beginning to install the product.

- All installation, repair, and service work to this product must be carried out by a suitably qualified person
- Do not activate your barrier unless you can see it and can determine that its area of travel is clear of people, pets, or other obstructions
- NO ONE MAY CROSS THE PATH OF A MOVING BARRIER Always keep people and objects away from the barrier and its area of travel
- NEVER LET CHILDREN OPERATE OR PLAY WITH THE BARRIER CONTROLS
- Secure all easily accessed barrier controls in order to prevent unauthorized use of the barrier
- Do not in any way modify the components of the automated system
- Do not install the equipment in an explosive atmosphere: the presence of flammable gasses or fumes is a serious danger to safety
- Before attempting any work on the system, cut electrical power to the operator and disconnect the batteries
- The mains power supply of the automated system must be fitted with an all-pole switch with contact opening distance of 3mm or greater. Use of a 5A thermal breaker with all-pole circuit break is recommended
- Make sure that an earth leakage circuit breaker with a threshold of 30mA is fitted upstream of the system
- Never short circuit the battery and do not try to recharge the batteries with power supply units other than that supplied with the product, or by Centurion Systems

- Make sure that the earthing system is correctly constructed, and that all metal parts of the system are suitably earthed
- Safety devices must be fitted to the installation to guard against mechanical movement risks, such as crushing, dragging and shearing
- It is recommended that at least one warning indicator light be fitted to every system
- Always fit the warning signs visibly to the inside and outside of the barrier
- The installer must explain and demonstrate the manual operation of the barrier in case of an emergency, and must hand the User Guide over to the user
- Explain these safety instructions to all persons authorized to use this barrier, and be sure that they understand the hazards associated with automated gates
- Do not leave packing materials (plastic, polystyrene, etc.) within reach of children as such materials are potential sources of danger
- Dispose of all waste products like packaging materials, worn out batteries, etc. according to local regulations
- Always check the obstruction detection system, and safety devices for correct operation
- Centurion Systems does not accept any liability caused by improper use of the product, or for use other than that for which the automated system was intended
- This product was designed and built strictly for the use indicated in this documentation. Any other use, not expressly indicated here, could compromise the service life/operation of the product and/or be a source of danger

Everything not expressly specified in these instructions is not permitted.

WARNING! WARNING! WARNING! WARNING! WARNING!
Safety FIRST
MOVING BARRIER CAN CAUSE SERIOUS INJURY OR DEATH
KEEP AWAY! THE BARRIER MAY MOVE AT ANY TIME
DO NOT ALLOW CHILDREN TO PLAY IN THE AREA
OR OPERATE BARRIER

1. Declaration of conformity

Manufacturer:

Centurion Systems (Pty) Ltd
Unit 13 Production Park
Intersection Newmarket Road & Epsom Avenue
North Riding
Gauteng
South Africa

Declares that the product:

Product name: SECTOR Traffic barrier
Product options: All variants

Conforms with the following specifications:

Safety: IEC 61010-1:2001

Emissions: CISPR 22 CLASS B: Radiated emissions – 150MHz to 1GHz
CISPR 22 CLASS B: Conducted emissions – 150 KHz to 1GHz

Immunity: IEC 61000-4-2 – Electrostatic discharge
IEC 61000-4-3 – Radiated immunity – 80MHz to 1000MHz
IEC 61000-4-4 – Electrical fast transients/burst
IEC 61000-4-5 – Surge immunity test
IEC 61000-4-6 – Conducted immunity – 150KHz to 80MHz
IEC 61000-4-8 – Power frequency magnetic field
IEC 61000-4-11– Voltage dips and interruption

Standard to which conformity is declared:

IEC 61010-1:2001	Safety
IEC 61000-6-3:2006	Emissions
IEC 61000-6-1:2005	Immunity

Signed at North Riding, South Africa on December 1, 2010

Ian Rozowsky
Research & Development Director.

2. General description

The SECTOR barrier has been designed to safely and cost-effectively apply high-duty vehicular access control to roadways between 3m and 6m wide. The battery backed up system ensures continued operation in the event of a power failure. The failsafe position and collision detection system has been designed and tested to set the standard in safety of operation and to provide an unparalleled level of reliability and durability in operation. The pole travel limits are managed by a sealed opto-electronic system that ensures precise position and trajectory control. Accurate and reliable collision detection ensures safe operation even under trying conditions. A precision die-cast gearbox and novel speed and trajectory control algorithm ensures smooth and rapid operation even after many years of service. The splined output coupler eliminates pole droop over time. The SECTOR control card has been designed to be easy and intuitive to use with helpful instructions on the status of the operation during and after installation.

Some of the advanced features offered by the SECTOR controller are:

- Interactive graphical user interface via a backlit LCD display to facilitate and simplify the installation process
- Fully automated single button limit setup
- Independent Memory Input, Non-Memory Input, Barrier Raise and Barrier Lower Inputs
- Advanced closed-loop speed control to maintain safe and reliable operation in windy conditions
- Independent control of Opening and Closing speeds
- Selectable and adjustable Autolower
- Selectable mains failure raise
- Smooth, adjustable start/stop (ramp-up and ramp-down)
- Multiple Operating Profiles
- Onboard CENTURION receiver with full channel mapping capability (limited to 500 buttons)
- A status LED output to indicate the barrier status remotely
- Advanced and proven lightning protection

Lightning Protection

The SECTOR electronic controller utilises the same proven surge protection philosophy that is used in all CENTURION products. While this does not guarantee that the unit will not be damaged in the event of a lightning strike or power surge, it greatly reduces the likelihood of such damage occurring. The earth return for the surge protection is provided via the mains power supply earth.

In order to ensure that the surge protection is effective, it is essential that the unit is properly earthed.

3. Specifications

Physical dimensions

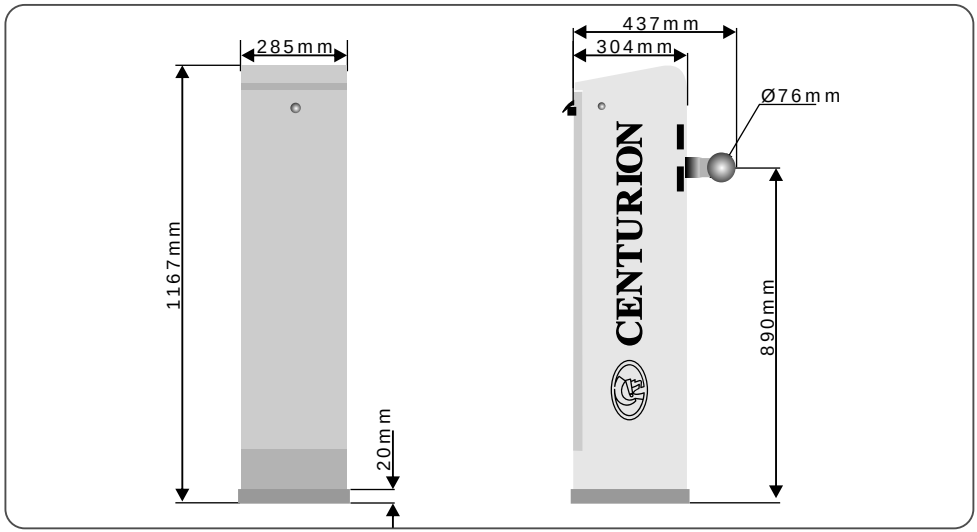


FIGURE 1. OVERALL DIMENSIONS

Technical specifications

	SECTOR 3	SECTOR 4.5	SECTOR 6
Input voltage	220-240V AC ± 10%, 50Hz★		
Motor voltage	12V DC		
Motor power supply	Battery driven (standard capacity - 7Ah)✢		
Battery charger	CP84SM - 2A @ 13.8V		
Current consumption (mains)	170mA		
Boom pole length	3.0m	4.5m	6.0m
Boom pole raise time (adjustable)✯	1.2 sec	3 sec	3 sec
Manual override	Allan key operated from outside unit		
Maximum number of operations per day	3000		
Duty cycle - mains present✺✱	80%		
Operations in standby with 7Ah battery			
Half day✧	3000✲		
Full day✧	3000✲		
Collision sensing	Electronic		
Operating temperature range	-15°C to +65°C		
Onboard receiver type	CENTURION code-hopping multichannel		
Receiver code storage capacity	500 transmitter buttons		
Receiver frequency	433MHz		

★ Can operate off a solar supply, consult Centurion Systems for assistance
✢ Can increase battery capacity for longer standby times
✯ Boom pole raise and lower times are both individually configurable to suit individual installation requirements
✺ Based on 25°C ambient temperature and unit not in direct sunlight
✱ Based on an output torque of less than 50% of rated
✧ Based on basic operator excluding closing loop detector
✲ Limited by daily usage

Barrier housing specifications

	SECTOR 3	SECTOR 4.5	SECTOR 6
Application	Inland areas	Coastal plains -no airborne salt	Marine areas
Main housing surface protection	Zinc-passivated mild steel with epoxy coating	Grade 430 stainless steel with epoxy coating	Grade 316 brushed stainless steel
Base frame surface protection	Mild steel, hot dip galvanised	Mild steel, hot dip galvanised	Grade 316 brushed stainless steel
Housing construction	Sheet metal housing, 1.6mm wall thickness with separate fabricated base frame, 3mm wall thickness to raise housing above ground		
Colour	Traffic yellow		
Housing protection rating	IP 55		

Barrier pole specifications

Material and profile	Aluminium, round profile with plastic end cap
Dimensions	Outside diameter: 76.2mm; Wall thickness: 1.27mm
Weight	800g/metre
Surface protection, colour and markings	Epoxy-coated white with red reflective tape

Fuse protection

The following protection fuses are provided on the system:

Item	Type	Rating
Main controller		
Motor circuit	Automotive fuse ATO (25 x 7 mm)	30A
Light circuit	5 x 20mm	3A fast blow
Auxiliary supply	Electronic limit	300mA

Charger		
Mains input	5 x 20mm	3A fast blow✳

✳ Not user serviceable

4. Icons used in this manual

This icon indicates tips and other information that could be useful during the installation

This icon denotes variations and other aspects that should be considered during installation

This icon indicates warning, caution or attention! Please take special note of critical aspects that MUST be adhered to in order to prevent injury

5. Product identification

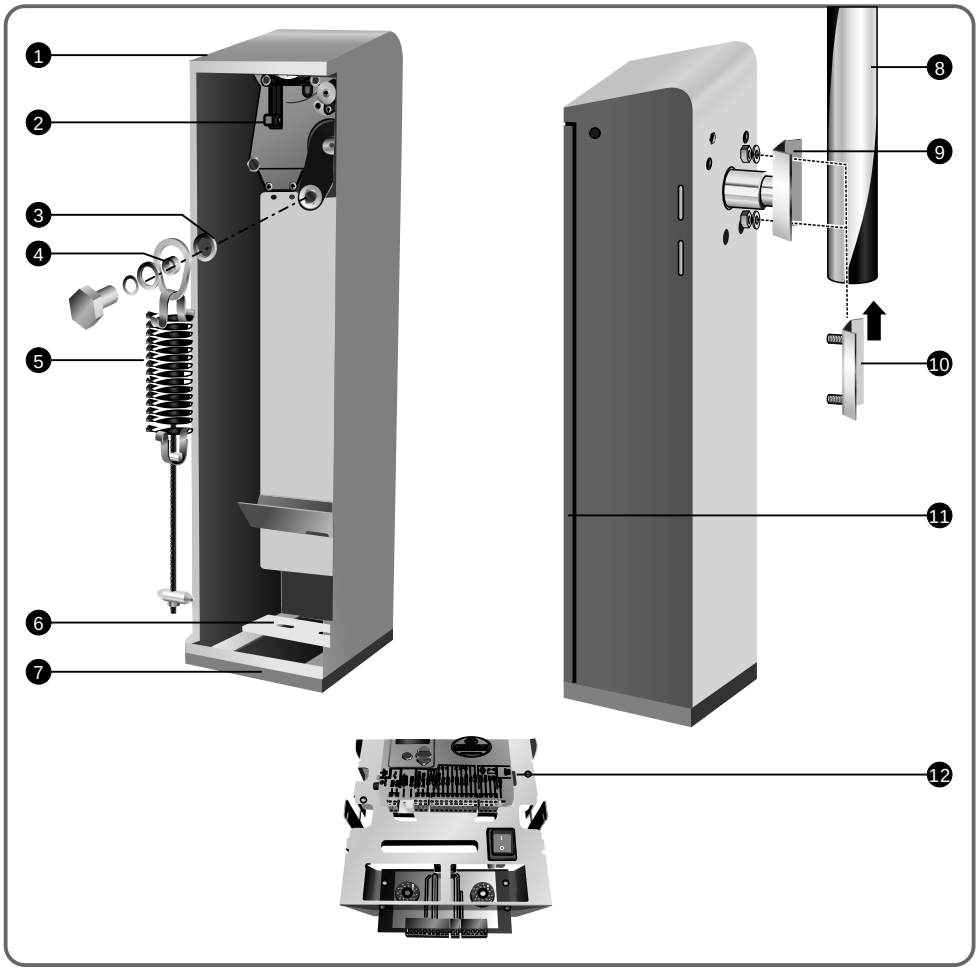


FIGURE 2. PRODUCT IDENTIFICATION

1. SECTOR enclosure
2. Gearbox assembly (3m, 4.5m and 6m)
3. Spring locating washer
4. Spring bush (3m, 4.5m and 6m)
5. Counterbalance assembly (3m, 4.5m and 6m)
6. Retaining bracket
7. Floor spacer
8. Boom pole (3m, 4.5m and 6m)
9. Boom coupler
10. Boom retainer
11. Door
12. Electronics assembly

6. Required tools and equipment

- Spanner – 17mm; 13mm
- Screwdriver – 3.5mm flat and 6mm Philips
- Hammer
- Electric drilling machine
- G-clamp x 2
- Pick
- Crimping tool and pin lugs
- Self-locking pliers (vice-grip)
- Pliers
- Side cutters
- Masonry bits – 6mm; 20mm; (for sites with rawlbolt foundation plates)
- Steel bits – 8.5mm; 5.0mm; 4.0mm
- Spade
- Spirit level
- Measuring tape
- Welding machine, including safety equipment and consumables
- Angle grinder
- Extension cord
- Marking pen/pencil and chalk
- Safety equipment, gloves, goggles, etc.

7. Preparation of site

General considerations for the installation

- Consider the following checklist when determining the safety and suitability of the site:
  - Check that all local authority requirements will be met
  - Check that the usage (duty cycle) of the site and the length of the boom pole required, are within the barrier specifications
  - Check that there is sufficient clearance on the side of the roadway to mount the barrier
  - Check that a suitable foundation has been prepared for the barrier
  - Check that the fitment of additional safety equipment has been catered for
  - Check that no pipes or electrical cables are in the way of the intended installation

8. Loop detectors and associated functionality

FLUX OB onboard vehicle loop detector

Description

Certain SECTOR models provide an onboard single-channel inductive loop detector known as the FLUX OB, eliminating the need for a separate detector. This highly sensitive loop detector can be used for the connection of closing loops and does not require additional relays and bases to be fitted, saving time and money.

A number of diagnostic LEDs are present on the termination board to allow for quick and reliable loop installation, and a series of selectable dipswitches enables the individual user to change settings as best suits the installation. In addition, the inclusion of adjustable frequency settings provides excellent immunity to outside interference, and adaptive self-tuning means unparalleled and uncompromising reliability.

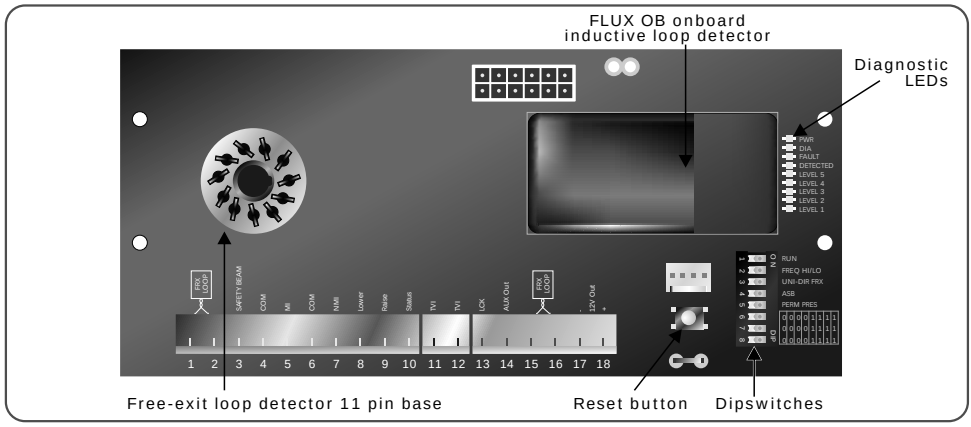


FIGURE 3. FLUX OB ONBOARD VEHICLE LOOP DETECTOR

FLUX OB features

Reset button

- Pressing the reset button enables the detector to be manually reset at any time. This results in the detector retuning the sensing loop and becoming ready for vehicle detection. In addition, a 0.5S output pulse will be generated

Run switch

- If the switch is ON, the detector is in Run Mode, and functions normally. If OFF, the detector halts, and the output relay defaults to the detected state. This is useful when working on the SECTOR, as it will prevent the boom from lowering

Frequency selection switch

- The frequency of the loop is determined by the inductance of the loop and the frequency switch setting. If the frequency switch is ON, the frequency is reduced by approximately 25%. It may be necessary to change the frequency to prevent cross-talk between adjacent loops

Uni-directional Free-exit switch

- The switch is used to select between uni- and bi-directional traffic. If the switch is in the ON position, the loop detector will generate a “raise” pulse whenever a vehicle is detected on the Free-exit loop. If, however, the switch is in the OFF position, a raise pulse will only be generated if a detect signal is received from the Free-exit loop only, and never when a signal is received from the Free-exit loop and the closing loop simultaneously (bi-directional traffic)

It is very important that the distance between the free-exit loop and the closing loop is less than the length of one car

Automatic Sensitivity Boost (ASB) switch

- This option increases the sensitivity of the detector after initial detection of a vehicle. This is useful to reliably detect vehicle and trailer combinations. Sensitivity returns to the selected value once the vehicle has been undetected

Permanent presence switch

- If this switch is set to the ON position, detection will be maintained as long as a vehicle remains on the loop. The danger in using this setting is that any change in the environment (for example the introduction of metal into the vicinity of the loop) will not automatically be tuned out without pressing the reset button. If not selected, the loop will automatically tune out any permanent detection after five minutes

Adjustable loop sensitivity settings

- Eight sensitivity settings are available

Sensitivity	SENS1	SENS2	SENS3
High (0.03%)	ON	ON	ON
0.06%	ON	ON	OFF
0.1%	ON	OFF	ON
0.2%	ON	OFF	OFF
0.5%	OFF	ON	ON
1%	OFF	ON	OFF
2%	OFF	OFF	ON
Low (4%)	OFF	OFF	OFF

Power indicator LED

- This red LED is on when power is present, and the controller is functioning

Loop fault indicator LED

- This red LED is illuminated when there is a loop fault. If the loop is open circuit, the Fault LED will flash continuously. If the loop is short circuit, it will remain on

Detection level indicator LEDs

- These five RED LEDs provide a visual indication of the Detection Level. Once all five LEDs are on, the detection threshold is almost reached. This is a very useful feature to determine if the loop is going to perform reliably. With no vehicle in the vicinity, all the LEDs should be off

Detect indicator LED

- This green LED indicator is illuminated when there is a vehicle detected. This LED can also be used to determine the loop frequency. Reset or power up, count the number of times the Detect LED flashes. Multiply this number by 10KHz. For example: if the LED flashes eight times, then the loop frequency is approximately 80KHz

Commissioning the FLUX OB

1. With the loop connected, apply power to the SECTOR controller.
2. The green Power LED on the termination board will light up, and the green Detect LED will flash until the loop has stabilised, and then turn off.
3. Once the loop has stabilised, only the green power LED should be on.
4. Bring a metal object towards the loop, and the Sense level LEDs will begin to light up, indicating the detection range of the loop.
5. Once all five lights have lit up, the unit will enter detect, with the green detect LED lit.
6. Configure the desired operational settings using the dipswitches.
7. Test the FLUX OB using a metallic object, or a vehicle.

FLUX OB diagnostics

Symptom	Possible cause	Solution
The sense level LEDs flash erratically	There may be a poor connection in the loop or loop feeder	Check all wiring. Tighten screw terminals. Check for broken wires
	The detector may be experiencing crosstalk with the loop of an adjacent detector	Try changing frequencies using the frequency switch. Put the detector with the larger loop onto low frequency and the detector with the smaller loop onto high frequency
The detector randomly detects, even though there is no vehicle present	Faulty loop or loop feeder wiring	Check the wiring. Tighten screw terminals. Check for pinched or bent wires. Is the feeder wire twisted?
	Movement of the loop in the ground	Check for cracks in the road surface near the loop
The Loop Fault LED is flashing	The loop inductance is too large, or the loop is open circuit	Check that there is electrical continuity on the loop. If the inductance is too large then try reducing the number of turns
The Loop Fault LED is permanently illuminated	The loop inductance is too small, or the loop is short circuited	Check that there is no short circuit on the loop feeder wiring of the loop. If there is no short circuit then the inductance is too small and more turns of wire should be added to the loop

Separate loop detector module

- If your SECTOR vehicle traffic barrier has not been fitted with an onboard inductive loop detector, it is possible to install an external detector using one or both of the bases provided on the SECTOR termination board. Bases are provided for both Free-exit and closing loop connections.* Setup will be as per the individual detector. For more information on the different configurations and Modes of Operation as well as connecting closing and Free-exit loops, please refer to section 15, Electrical Setup

*12V loop detectors MUST be used.

Tips for successful loop installation

- The loop and feeder should be constructed from XLPE (cross-linked polyethylene) insulated multi-stranded copper wire with a minimum cross-sectional area of 1.5mm². The feeder should be twisted at a rate of at least 20 turns per metre to improve reliability (Remember that twisting the feeder will shorten its length, so ensure a long enough feeder wire is used). Feeders which may pick up electrical noise should use screened cable, with the screen earthed at the detector
- Joints in the wire are not recommended, but where required must be soldered and made waterproof
  - Faulty joints will lead to unreliable operation
- The loop should be either square or rectangular in shape with a minimum distance of 1m between opposite sides
- Two to six turns of wire are typically used in the loop – See table below:

Loop perimeter (metres)	Number of turns
3-4	6
4-6	5
6-10	4
10-20	3
>20	2

- When two loops are laid in close proximity to each other, it is recommended that different numbers of turns are used in each loop to prevent cross-talk
- Cross-talk describes the interference between two adjacent loops, and can cause reliability issues
  - To minimise cross-talk, adjacent loops should be at least two metres apart, and different frequency settings
- The most reliable form of loop is preformed and enclosed in conduit. This prevents water ingress, and minimises the effects of vibration
- Where a pre-formed loop is not practical, slots should be cut into the road using a masonry cutting tool. A 45° cut should be made across the corners to prevent damage to the wire on the corners. The slot should be about 4mm wide and 30mm to 50mm deep. Remember to extend the slot from one of the corners to the roadside to accommodate the feeder. After the loop and feeder wires have been placed in the slot, the slot must be filled with an epoxy compound or bitumen filler

9. Select Operating Mode

There are four Modes of Operation which can be selected, namely Simplex, Complex, PLC and Spike

1. Simplex Mode

- Typical application would be the entrance to premises, which is controlled by a guard
- Raising and lowering of the boom pole is done via pushbutton or remote control connected to the memory input (MI). The Autolower feature can be used to automatically lower the boom pole after an adjustable Autolower Time

In Simplex Mode, the MI input will have the following characteristics:

- The input activates (the barrier responds) on the leading edge of the signal; in other words, the moment the button is pressed
- From the fully lowered position, pressing the button once will cause the boom pole to raise. A second button press will result in the boom reversing direction. In other words, the action is: press to raise, press to lower and, if the barrier is in a semi-raised position, press to reverse - NB -The barrier cannot be stopped in a midway position.
- The NMI input operates exactly in the same way as MI when the SECTOR is in Simplex Mode, but the input activates on the trailing edge of the signal, i.e. when the button is released
- In Simplex Mode you can use standard infrared safety beams or a loop detector to prevent the barrier pole from being lowered onto a vehicle moving past the barrier. However, the closing loop is always recommended in preference to beams as it operates more reliably when used with barriers.
- In this Mode of Operation, it will act purely as a safety loop and will not influence the closing of the barrier. However, the loop can be made to function as a closing loop if ILAC Mode is enabled.
- ILAC Mode, which is comparable to PIRAC Mode as found on CENTURION gate motors, causes the boom to auto-lower as soon as the inductive loop is cleared, i.e. the vehicle moves off. This is a desirable action in high-security applications and is an effective deterrent to tailgating.

2. Complex Mode

- Typical application is any unmanned entrance, which makes use of any number of different access control devices to raise the boom pole
- In Complex Mode, the boom pole lowers the moment the vehicle has driven over and cleared the closing loop, which is mounted below the boom pole
- Access control devices, including proximity or card readers, keypads, remote controls, etc., are connected to the memory input (MI). In this instance, more than in Simplex Mode, the MI input can be seen as a “memory input” since it counts and stores the p ulses received and the barrier will only close once the corresponding number of activations and deactivations of the closing loop are received.
- For example, say that someone presses the pushbutton three times to raise the boom, then it will be necessary for a vehicle to clear the closing loop three times before the boom will lower.

If no closing signals are received, the boom will lower once the auto-lower time has expired. As with Simplex Mode described above, the input activates the moment that the button is pressed.

- CENTURION recommends that an inductive loop detector, such as the one provided onboard, is used as the closing loop. This also acts as a safety loop while the vehicle is present on the loop detector. As an alternative, but not recommended is to use a set of infrared safety beams. It is recommended that two sets of safety beams are used, which are spaced about 500 millimetres apart.
- There is a Non-Memory Input (NMI) to raise the boom pole when activated by a ticket vending machine, pay parking system, etc. In Complex Mode, the boom will always lower the first time that a closing signal is received, irrespective of how many trigger impulses were received on the NMI input. For example, even if the button is pressed twice, the closing loop will only need to be cleared once for the pole to lower. As with Simplex Mode, the input is activated once the button is released.
- A ticket vend interlock is available via a potential-free contact to prevent the issuing of tickets if the boom pole is raising or raised. These contacts can also be used as a potential-free contact for courtesy or security lights that illuminate automatically when the barrier is operated and remain illuminated for an adjustable period of time afterwards.

2a. Free-exit (typically applicable to Complex Mode)

- It is possible to use the free-exit facility on the controller to automatically raise the barrier for vehicles exiting the parking area or premises
- It is recommended to use an Inductive Loop Detector to activate the free-exit facility. Alternatively, a set of infrared safety beams may be used, but this is not recommended
- The system can be configured for uni-directional traffic with the barrier dedicated as a free-exit barrier. The closing loop will be used to lower the barrier the moment the vehicle has exited
- It can also be configured for bi-directional traffic with the same barrier providing access control for vehicles entering and free-exit for vehicles exiting. The free-exit loop must be mounted close enough to the closing loop so that the vehicle exiting is still present on this loop when it reaches the closing loop. However, these must not be too close together, or magnetic interference will be caused

3. PLC mode

- In this Mode of Operation, separate inputs are controlled via pushbutton or directly from a third-party programmable logic controller or PC to raise, lower and stop the barrier
- There is one safety input for use with an Inductive Loop Detector or infrared safety beams to prevent the boom pole from lowering onto a vehicle

4. Spike mode

- The Mode of Operation will only be enabled if the controller is used as a CLAWS controller and will never be used on a stand alone SECTOR.
- The purpose of Spike Mode is simply to switch controller functionality to drive CLAWS

10. Cabling requirements

The cable requirements differ according to the mode that you have selected.

- All cables must be routed in conduit unless underground cable is being used
- For the detection of vehicles, CENTURION recommends installing Inductive Loop Detectors in preference to infrared beams

1. Simplex Mode

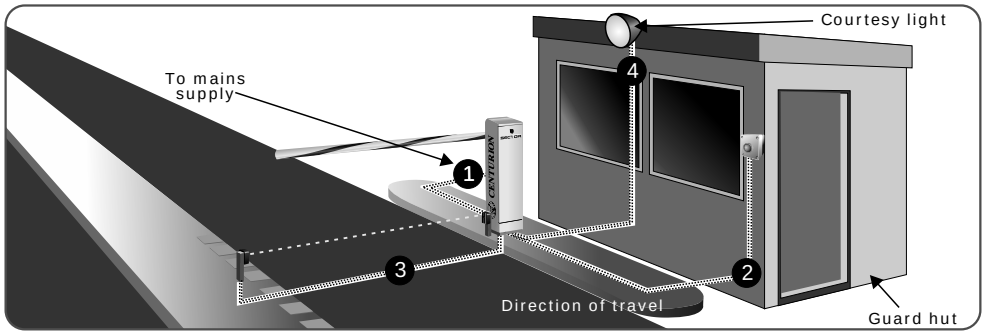


FIGURE 4. SIMPLEX MODE CABLING

2. Complex Mode (basic)

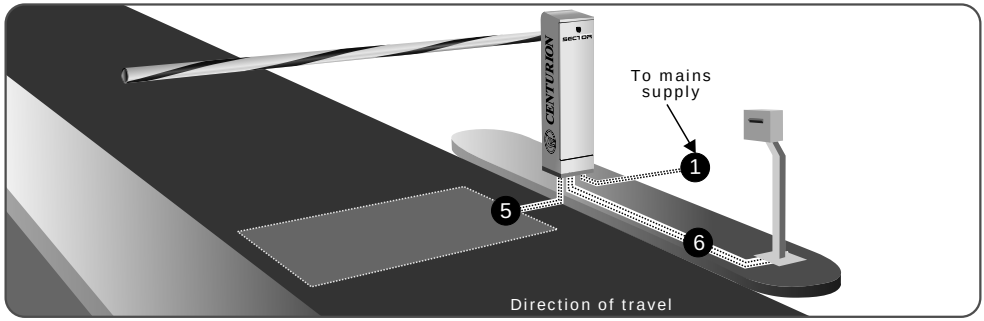


FIGURE 5. COMPLEX MODE CABLING

3a. Free-exit for uni-directional traffic

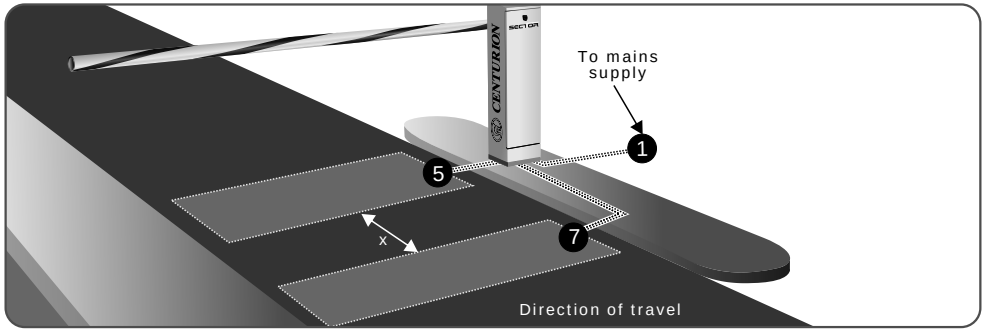


FIGURE 6. FREE-EXIT FOR UNI-DIRECTIONAL TRAFFIC CABLING

3b. Free-exit for bi-directional traffic

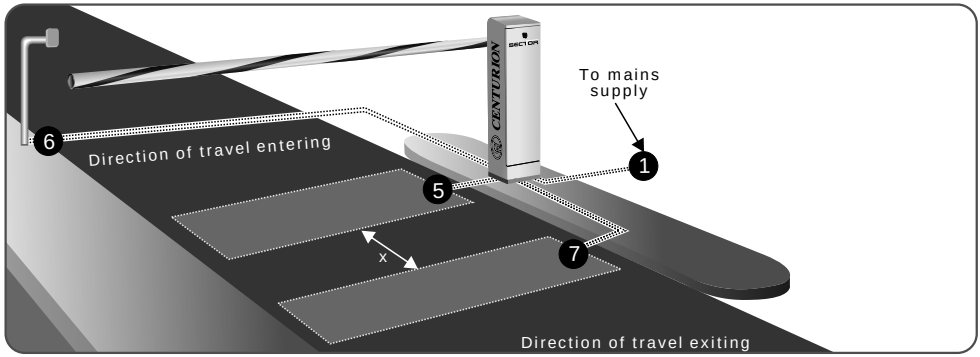


FIGURE 7. FREE-EXIT FOR UNI-DIRECTIONAL TRAFFIC CABLING

- x refers to the distance required between the loops for free-exit
- Free-exit for uni-directional traffic, x must be greater than 1000mm
- If FLUX OB is fitted, set the UNI-DIR FRX dipswitch to the ON position
- For bi-directional traffic, x must be less than the length of an average motor vehicle (between 1000mm and 2000mm). The exiting vehicle must not leave the free-exit loop before driving onto the closing loop. The barrier will raise when the exiting vehicle drives onto the free-exit loop. If FLUX OB is fitted, set the UNI-DIR FRX dipswitch to the OFF position

Legend

1. 220-240V AC mains cable (three core LNE 1.5mm^2★ SWA✣)
2. Pushbutton control (two core 0.5mm^2 multi-stranded)
3. Infrared safety beams (three core 0.5mm^2 multi-stranded)
4. Optional Pillar Lights (three core LNE SWA✣ , size according to power requirements)
5. Inductive loop Detector for closing or safety (one core 0.5mm^2 multi-stranded silicone-coated)✺
6. Access control device (two core 0.5mm^2 multi-stranded✧)
7. Inductive Loop Detector for free-exit (one core 0.5mm multi-stranded - silicone coated)✺

✣ Type of cable must adhere to municipal bylaws but typically SWA (steel wire armoured) cable is recommended. The armouring provides excellent screening, which gives better protection against lightning – earth one end of the screening

✺ Consult manufacturer of loop detector for specific details, or refer to page nine for information on the FLUX OB onboard inductive loop detector

✧ Number of cores and type of cable could vary depending on brand of access control system being used

11. Orientation

It is always recommended to mount the barrier with its access door facing the oncoming traffic. This ensures that if a vehicle accidentally hits the pole, the pole is knocked away from the barrier housing, not back onto the barrier housing, potentially damaging the housing.

Left Hand

- A Left Hand barrier is defined as a unit installed on the left hand side of the road from which the vehicle approaches. The door always faces oncoming traffic.

It is possible to change to left hand orientation allowing the barrier to be mounted on the left hand side of the roadway with the pole pointing to the right. See Section 12 for details

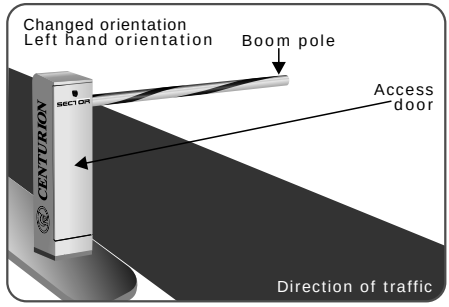


FIGURE 8. LEFT HAND ORIENTATION

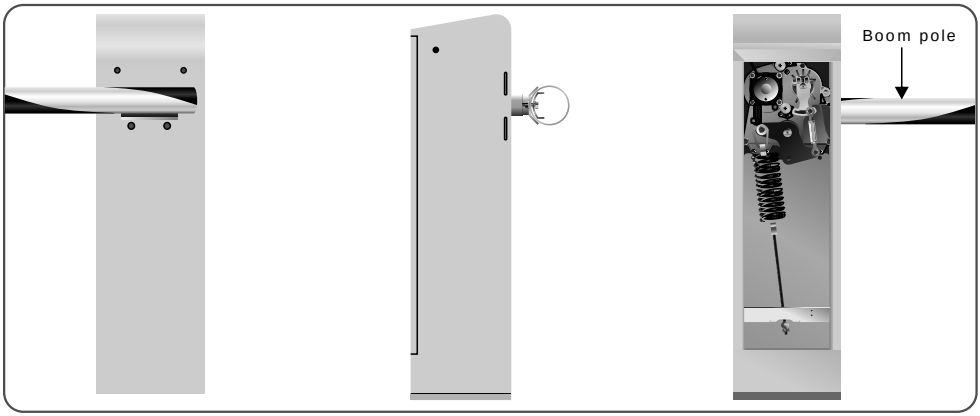


FIGURE 9. LEFT HAND ORIENTATION

Internal view of barrier

- Lefthand configuration when the pole is in the raised position

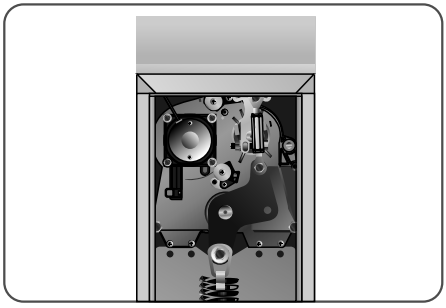


FIGURE 10. INTERNAL VIEW

Right Hand

- A Right Hand barrier is defined as a unit installed on the right hand side of the road from which the traffic approaches. The door always faces oncoming traffic.

The default orientation is the operator on the right hand side of the roadway, with the pole pointing to the left - also referred to as right hand orientation

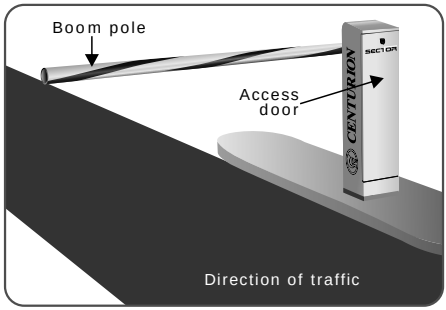


FIGURE 11. RIGHT HAND ORIENTATION

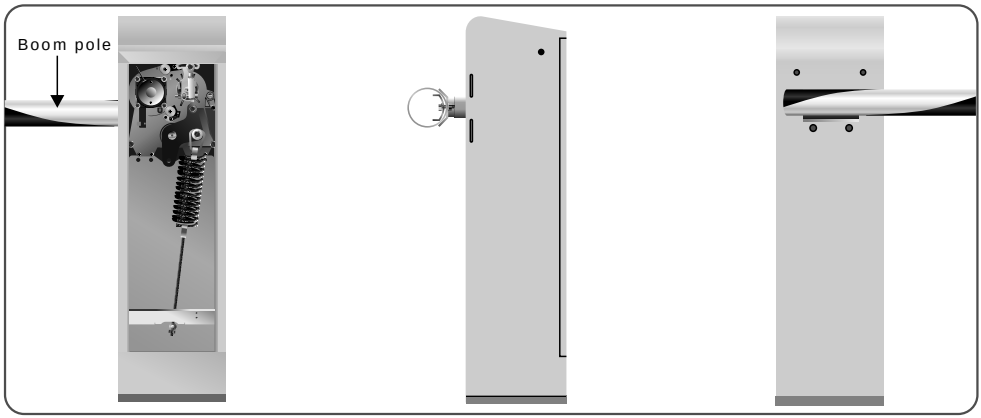


FIGURE 12. RIGHT HAND ORIENTATION

Internal view of barrier

- Right hand configuration when the pole is raised at up-right position

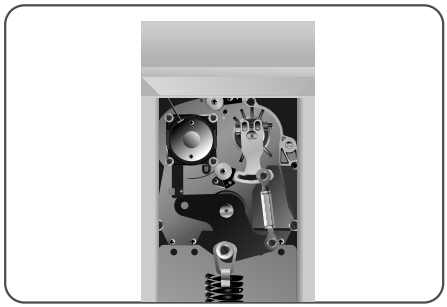


FIGURE 13. INTERNAL VIEW

12. Conversion from right hand to left hand

Remove the counterbalance spring

1. Remove the boom pole.
2. With the door and electronics assembly removed, make sure the spring is under minimum tension. To achieve this, it is advisable to have the boom pole in the raised position.
3. Loosen the tension bar nut until the taper bush can rotate freely below the cross beam.
4. Remove the counterbalance spring.

Convert

6. Remove the counterbalance spring pivot.
7. Fit the pivot and related parts to the hole in the output plate designated for the LH configuration.

Fit the counterbalance spring

9. Push the taper bush through the slot in the cross beam and rotate it 90° so that it sits perpendicularly across the beam.
10. Fit the counterbalance assembly.
11. Tighten the tension bar nut.

Remove the boom coupler

12. When changing the configuration of the barrier from right hand to left hand or vice versa, the boom coupler will be out of sequence and needs to be removed, rotated and then refitted.

13. Use the coupler puller shown in Figure 14 to remove the coupler

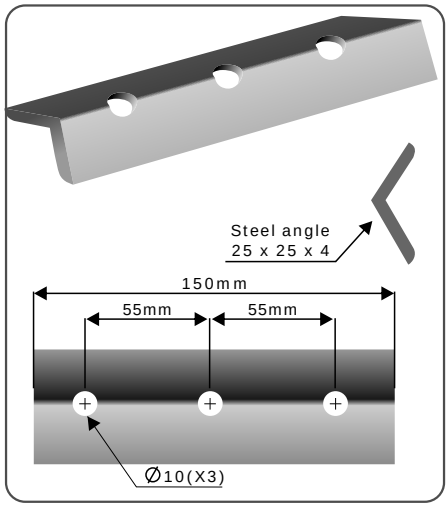


FIGURE 14. COUPLER PULLER

Fit the coupler puller

14. With the boom pole removed, fit the coupler puller to the boom coupler with two M8 bolts and nuts.

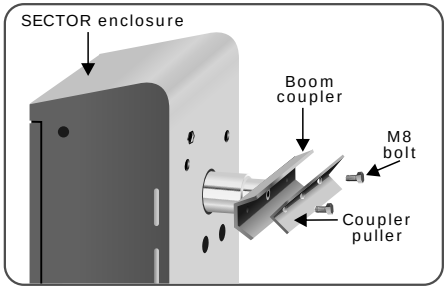


FIGURE 15. REMOVING THE COUPLER

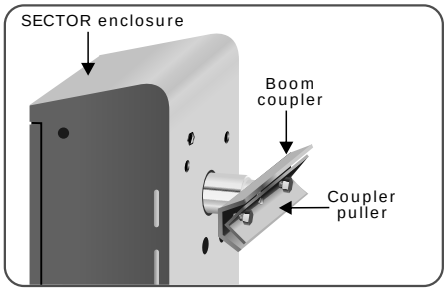


FIGURE 16. REMOVING THE COUPLER

Remove the coupler

15. Using an 8mm Allan Key, loosen the cap screw inside the boom coupler. The cap screw can be turned with the Allan Key through the middle hole in the coupler puller.
16. Keep loosening the cap screw until it buts up against the coupler puller.

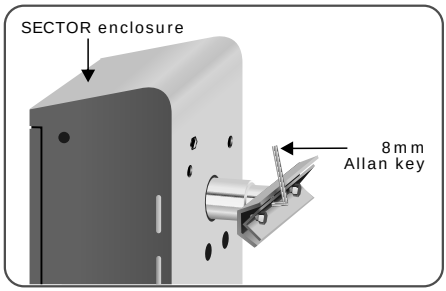


FIGURE 17. REMOVING THE COUPLER

17. Carry on loosening the cap screw until it releases the boom coupler.

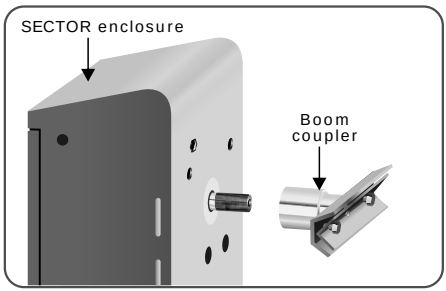


FIGURE 18. REMOVING THE COUPLER

Fit the coupler

18. With the counterbalance assembly under minimum tension – i.e. with the boom pole in the raised position – fit the boom coupler.

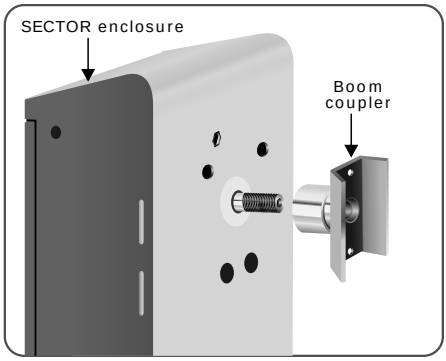


FIGURE 20. FITTING THE COUPLER

19. Engage the boom coupler/output shaft splines so that the boom coupler is in its closest vertical position.

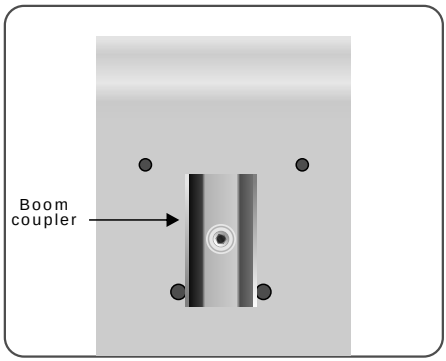


FIGURE 21. FITTING THE COUPLER

20. Fit the washer and cap screw and then tighten using an 8mm Allen Key.

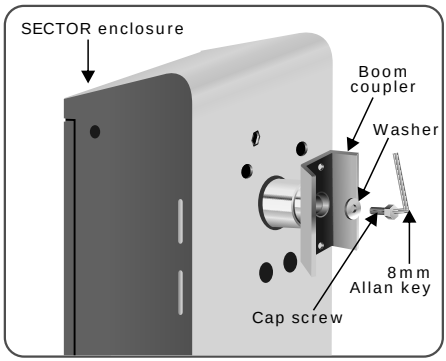


FIGURE 22. FITTING THE COUPLER

13. SECTOR installation

Enclosure positioning

1. Determine correct position for the barrier to be installed.

The dotted line denotes recommended dimensions of the concrete foundation

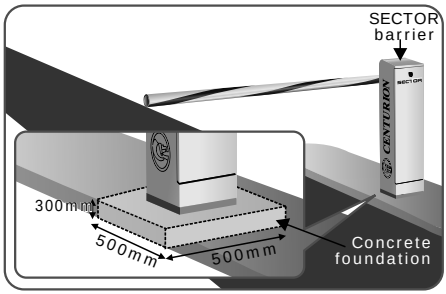


FIGURE 23. CONCRETE FOUNDATION

Check orientation of the door

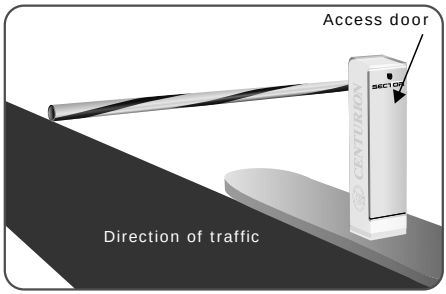


FIGURE 24. ORIENTATION

Concrete plinth / foundation

2. Prepare hole for concrete foundation.
3. Install cable conduits, making sure that the conduits exit in cable entry area, leaving approximately 50mm of conduit protruding above the concrete plinth.

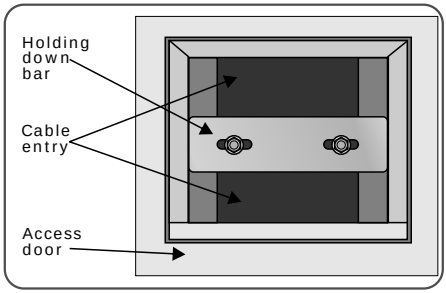


FIGURE 25. CONCRETE FOUNDATION

4. Concrete in anchor bolts or fit shield anchor rawl bolts later (size M12 x 70).

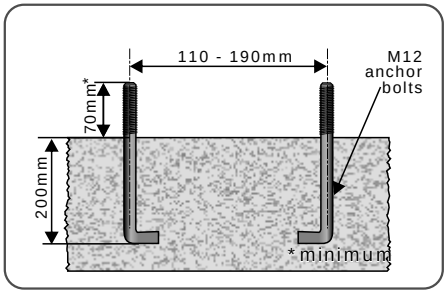


FIGURE 26. ANCHOR BOLTS

The enclosure is clamped down between the holding down bar and the concrete plinth

5. Align the enclosure and make sure the two anchor bolts go through the holes on the holding down bar as shown in Figure 27.

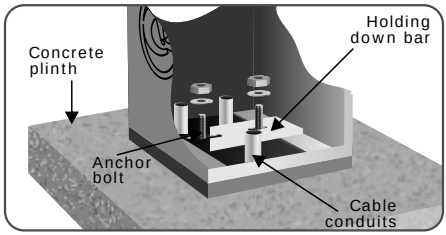


FIGURE 27. CLAMPING THE ENCLOSURE

Fitting the boom pole

6. Use the boom pole retainer piece as a ruler to mark a straight line on the boom pole.

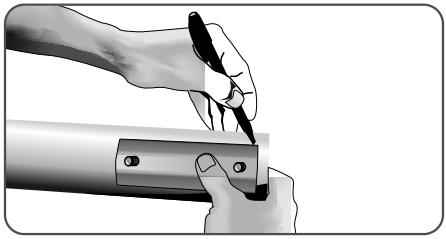


FIGURE 28. MARKING THE POLE

7. Mark and drill the 8.5mm holes in the boom pole according to the measurements.

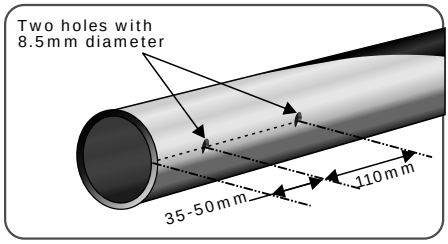


FIGURE 29. DRILLING HOLES

It is recommended that the Boom Pole is fitted when the Boom Coupler is in the vertical (raised) position.

8. Slide the boom pole retainer piece into the boom pole and push the mounting bolts through the drilled holes.
9. While holding the boom pole retainer piece in position, fit the boom pole onto the boom coupler.
10. Fit the M8 spring washers and nuts onto the bolts and tighten.

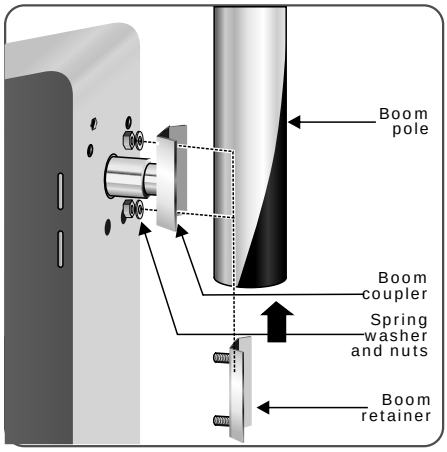


FIGURE 30. FITTING THE POLE

Levelling the boom pole

1. Using a 17 spanner, loosen the lock nuts on the adjustment link.
2. Turn the adjustment link to level the boom pole.
3. Tighten the lock nuts.

Both of the lock nuts will loosen/tighten in the same direction. This might not be the expected direction - if the lock nut does not loosen/tighten try the other direction

As the adjustment link is turned, the boom pole moves up or down. It is helpful to hold the adjustment link with a second spanner during this process

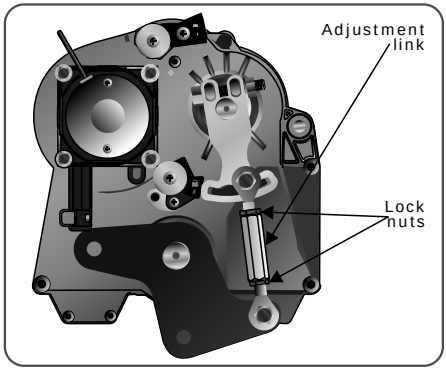


FIGURE 31. GEARBOX ASSEMBLY

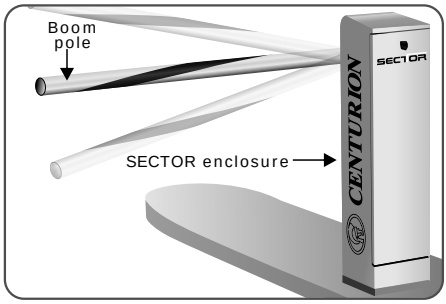


FIGURE 31. BALANCING

Balancing the Spring

1. Should the spring not be properly balanced, the onboard buzzer will alert the user to this fault condition.
2. A handy diagnostic screen, complete with graphic representation, can be found by simply pressing the down arrow once while in normal operating mode.
3. This screen will show the user exactly how many turns of the tensioning nut are needed to obtain optimum balancing of the counterbalance spring and in which direction.
4. The barrier must be operated at least three times before the new adjustments will be registered by the controller.
5. It is much easier to perform the tensioning operation while the boom pole is in the vertical (raised) position, as the spring will be under significantly less tension.

On the 6m and 4.5m SECTOR variants, a 24mm socket must be used on the tensioning nut, and a 19mm socket must be used for the 3m SECTOR

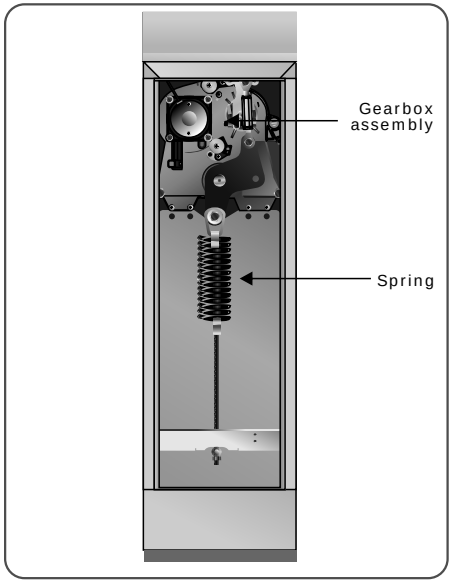


FIGURE 32. BALANCING THE SPRING

Failsafe/Lock mode

1. When the barrier is in Failsafe mode, the boom pole can be manually moved by hand.
2. In Lock mode, the boom pole is locked in the raised or lowered position and cannot be moved by hand.
3. These configurations are implemented by setting the top and bottom locking stops on the gearbox in different positions.

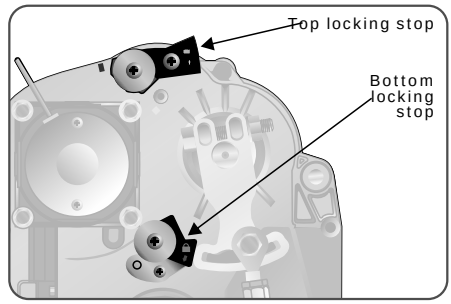


FIGURE 33. LOCKING

In the event of a system failure the boom pole can be raised or lowered by hand

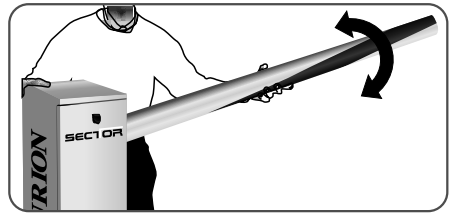


FIGURE 34. HAND OPERATION

Manual release

When the barrier is in Lock Mode it can be manually released as follows:

1. Insert the 8mm Allen Key (provided) into the release socket.
2. Turn the Allen Key to release the barrier, and then move the boom pole to the raised position by hand.
3. To lock the boom pole in the raised position, rotate the release socket (using the Allen Key)in the same direction as above until it stops.

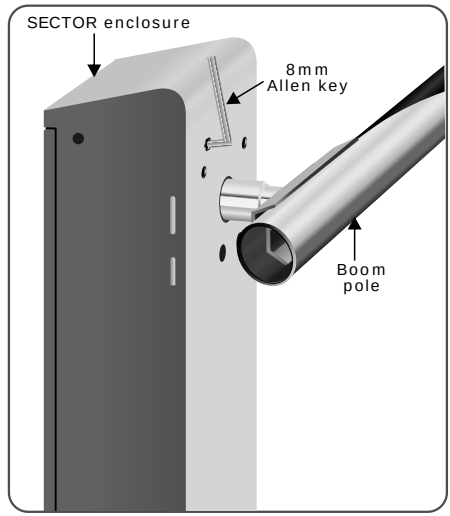


FIGURE 35. HAND OPERATION

14. Electrical setup

1. Always check that the circuit breaker in the electrical panel is in the OFF position, and that all high voltage circuits (more than 42.4V) are completely isolated from the mains supply before doing any work. The pole must be raised before isolating system.
2. Ensure that all low voltage systems (less than 42.4V) are suitably protected from damage, by disconnecting all sources of power such as chargers and batteries before doing any work.
3. All electrical work must be carried out according to the requirements of all applicable local electrical codes. (It is recommended that a licensed electrical contractor perform such work).

Connect all wiring

1. Connect all cables as required for the specific installation.
2. Ensure all interconnecting cables are securely in place.
3. Ensure single phase mains power is connected to the system.
4. Switch on the mains (isolator and circuit breaker), make sure that the battery is connected and check that the polarity is correct.

The wiring diagrams on page 11 begin connection at the termination board, and not the controller

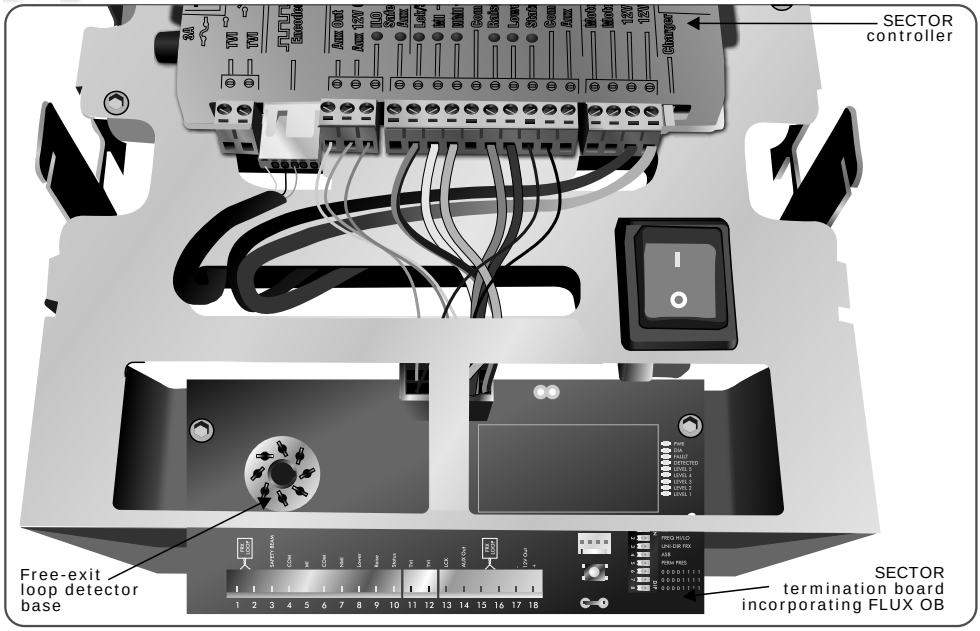


FIGURE 36. ELECTRONICS ASSEMBLY

15. Simplex Mode: Option 1 (Recommended) - electrical connections

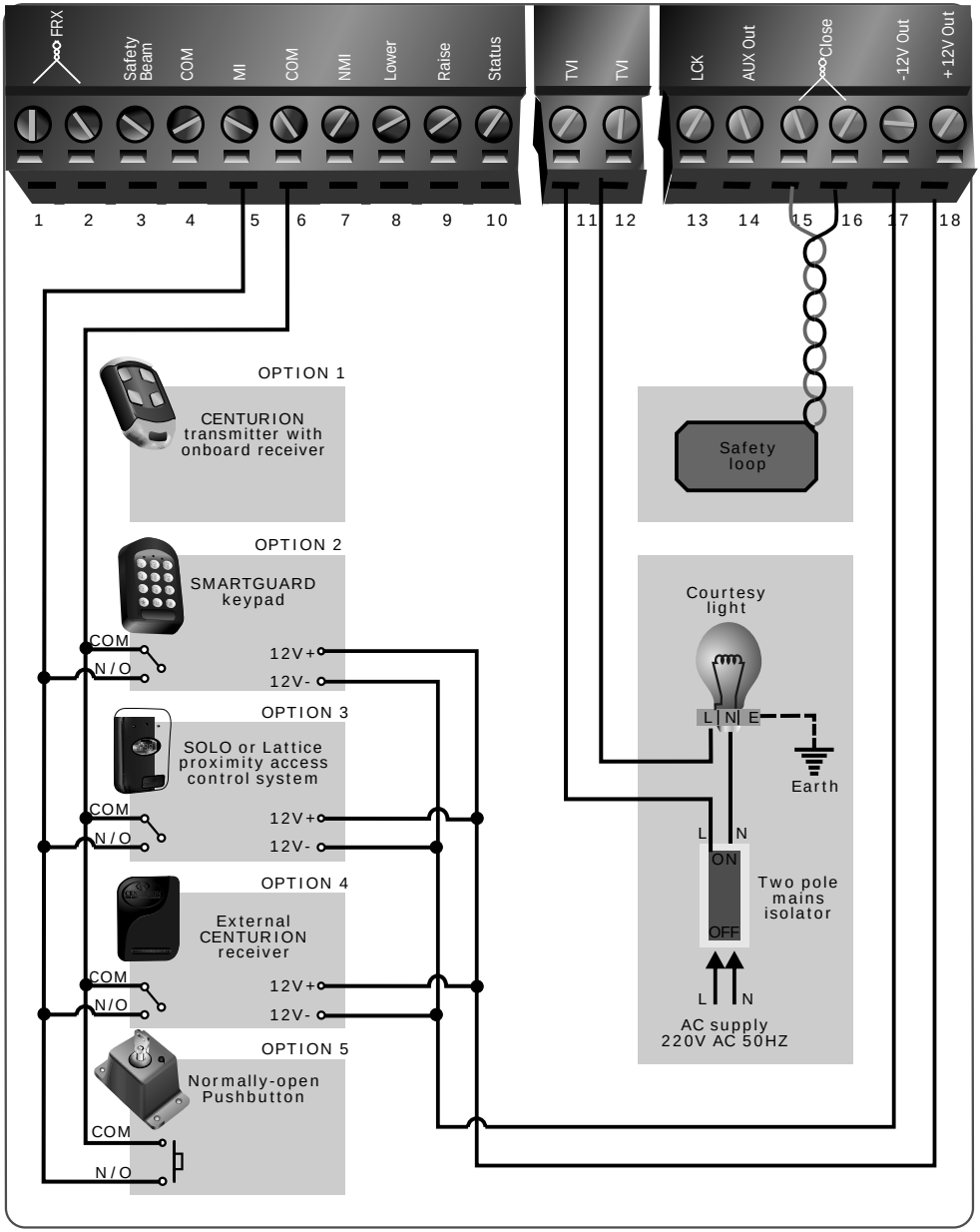


FIGURE 37. SIMPLEX MODE ELECTRICAL WIRING

Option 1

All connections are made to the termination board and NOT the controller (Refer to page 8)

The different inputs to and outputs from the termination board, react according to the following when Simplex Mode is selected:

- MI: In this mode, the memory input acts simply to raise and lower the boom pole with sequential activations
- Lower: A dedicated input to only lower the boom pole
- Raise: A dedicated input to only raise the boom pole
- TVI: Potential-free contact that can be used for a courtesy or security light. The light illuminates when the barrier is operated and remains switched on for an adjustable period of time after the boom pole has lowered
- Close (closing loop): The FLUX OB onboard loop detector can be used or a closing loop detector must be fitted. In addition to sensing when the vehicle has passed the barrier for closing purposes, it will act as a safety loop preventing the boom pole from being lowered onto a vehicle present on the loop

16. Simplex Mode: Option 2 - electrical connections

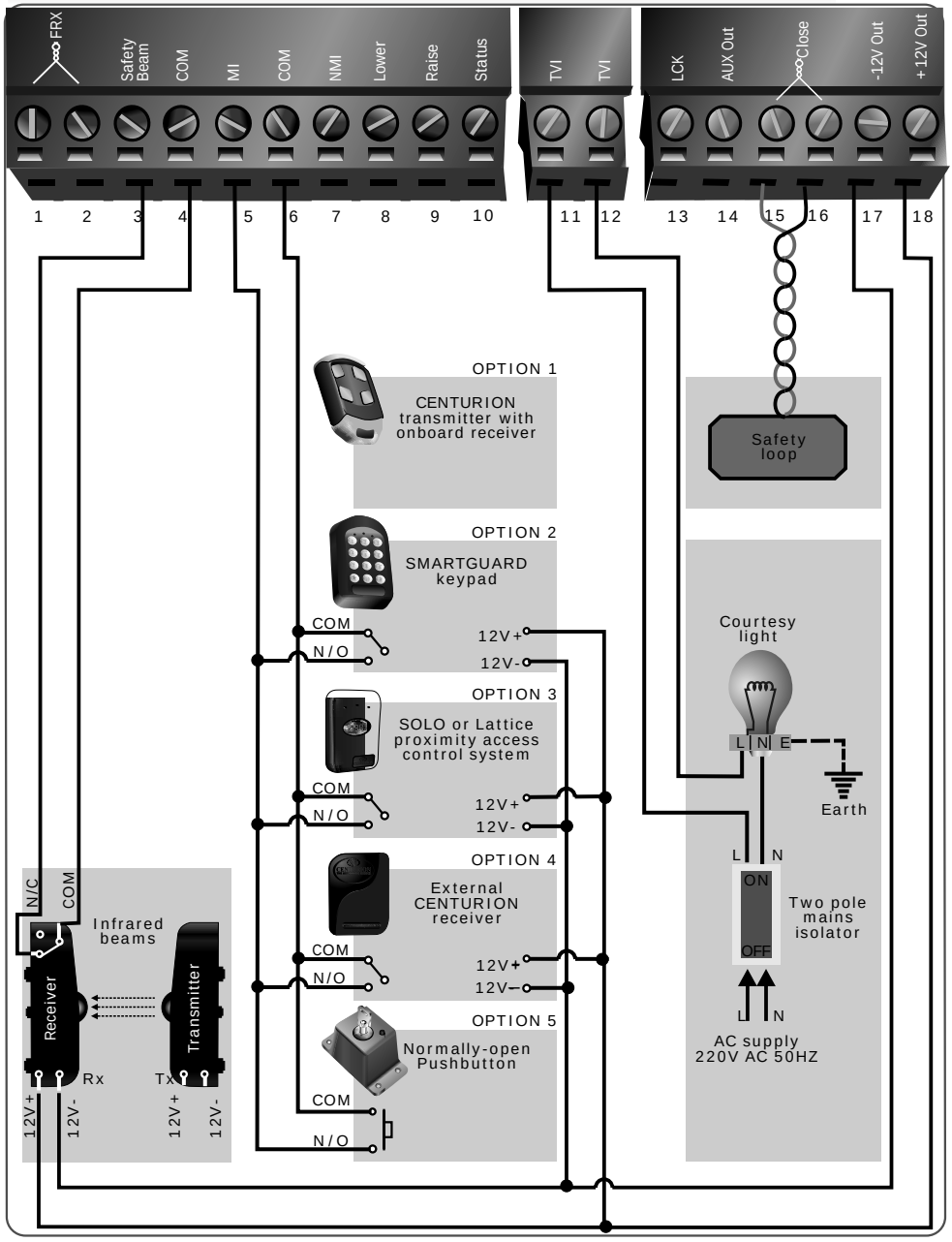


FIGURE 37. SIMPLEX MODE ELECTRICAL WIRING

Option 2

All connections are made to the termination board and NOT the controller (Refer to page 8)

The different inputs to and outputs from the termination board, react according to the following when Simplex Mode is selected:

- Safety Beam: Infrared safety beams can be used as an alternative to an inductive loop, but not recommended
- MI: In this mode, the memory input acts simply to raise and lower the boom pole with sequential activations
- Lower: A dedicated input to only lower the boom pole
- Raise: A dedicated input to only raise the boom pole
- TVI: Potential-free contact that can be used for a courtesy or security light. The light Illuminates when the barrier is operated and remains switched on for an adjustable period of time after the boom pole has lowered

17. Complex Mode: Option 1 (Basic) - electrical connections

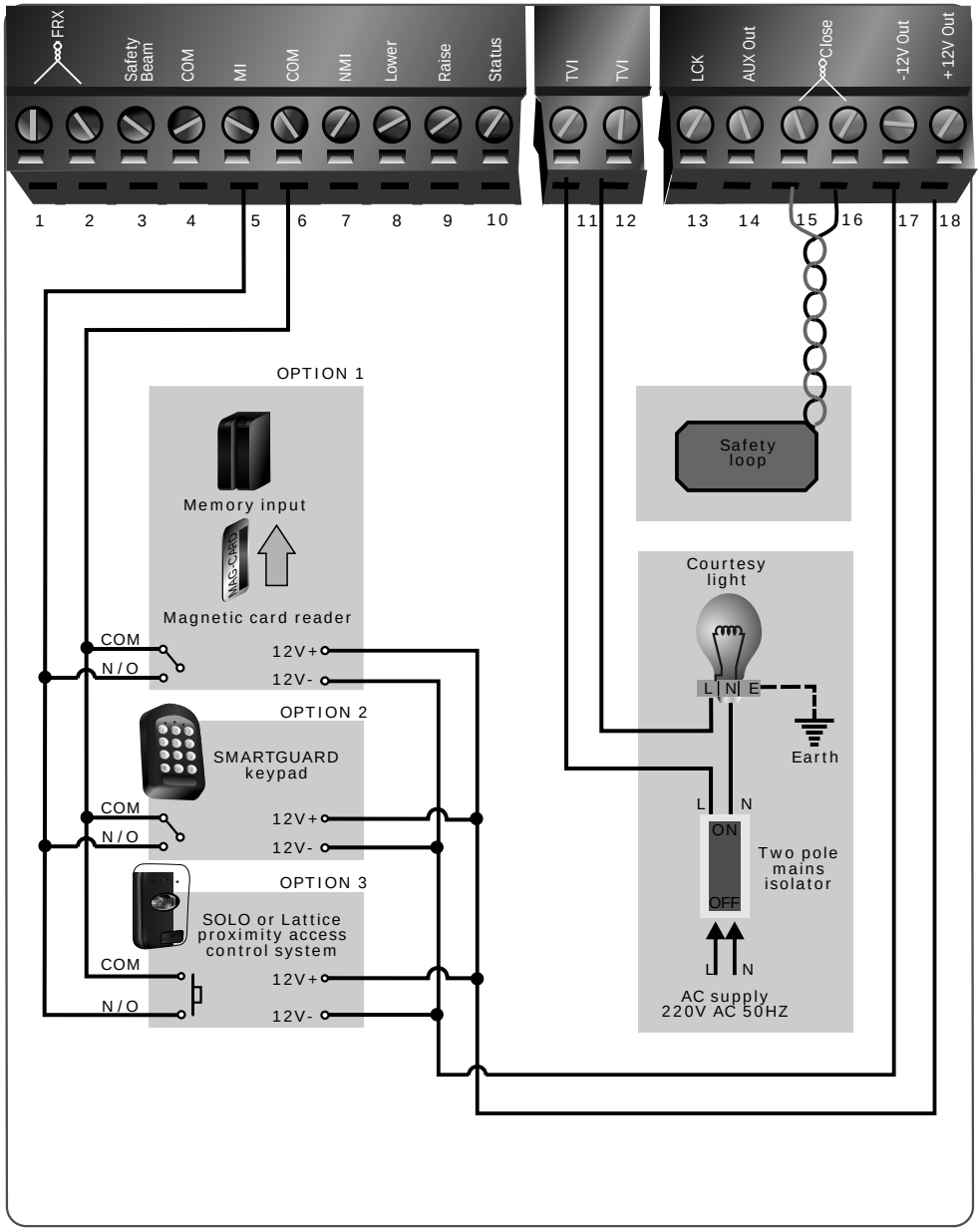


FIGURE 38. ELECTRICAL WIRING

Option 1: Basic

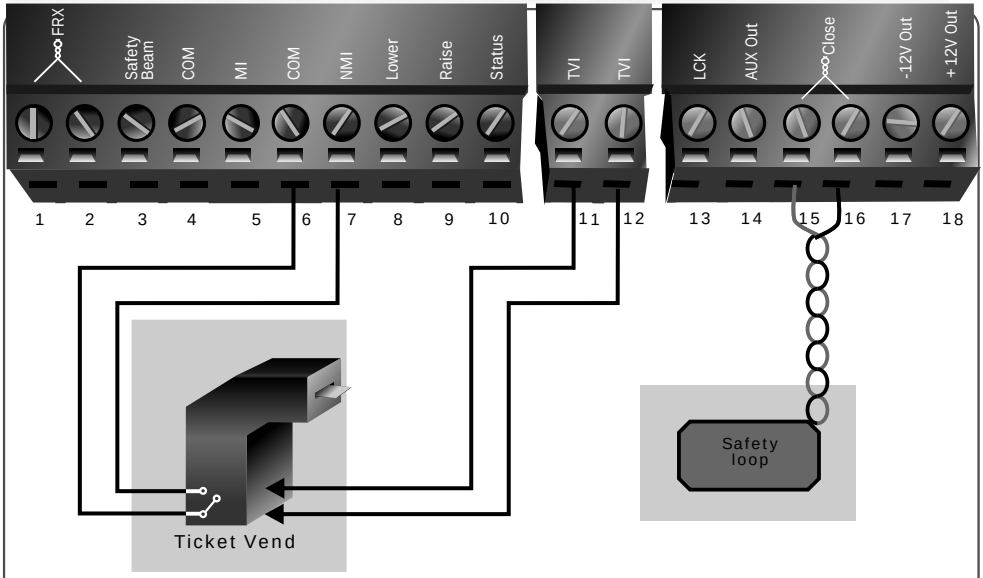
All connections are made to the termination board and NOT the controller (Refer to page 8)

The different inputs to and outputs from the termination board, react according to the following when Complex Mode is selected:

- Safety Beam: Although not recommended, this input can be used if a closing loop detector is not fitted. It is recommended that two safety beams are used, which are spaced about 500 millimetres, horizontally apart
- MI: The memory input counts and stores each trigger impulse. The boom pole will stay raised until the same number of closing signals are applied to the closing input , or the Autolower time expires

- NMI: Typically used with ticket vending machines – refer to Option 2
- Lower: A dedicated input to only lower the boom pole
- Raise: A dedicated input to only raise the boom pole
- TVI: Potential-free contact that can be used for a courtesy or security light. The light illuminates when the barrier is operated and remains switched on for an adjustable period of time after the boom pole has lowered
- Close (closing loop): The FLUX OB onboard loop detector can be used or a closing loop detector must be fitted. In addition to sensing when the vehicle has passed the barrier for closing purposes, it will act as a safety loop preventing the boom pole from being lowered onto a vehicle present on the loop

18. Complex Mode: Option 2 (Ticket vend) - electrical connections



Option 2: Ticket vending entry points

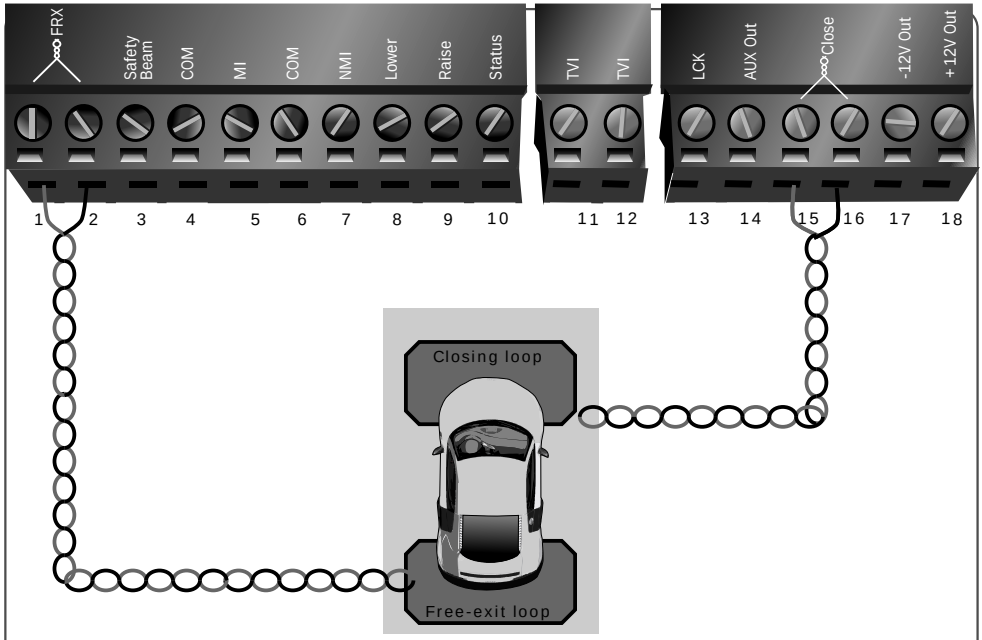
All connections are made to the termination board and NOT the controller (Refer to page 8)

The different inputs to and outputs from the termination board, react according to the following when Complex Mode is selected:

- Safety Beam: Although not recommended, this input can be used if a closing loop detector is not fitted. It is recommended that two safety beams are used, which are spaced approximately 500 millimetres, horizontally apart
- MI: Typically not used
- NMI: Non-memory input responds only when the trigger signal to the input is removed. It does not react when the signal is given. Connect to the trigger output from the ticket vending machines
- Lower: A dedicated input to only lower the boom pole
- Raise: A dedicated input to only raise the boom pole
- TVI: Ticket Vend Interlock is a potential-free output that prevents the ticket vending machine from issuing another ticket until the boom pole is closing or is closed
- Close (closing loop): The FLUX OB onboard loop detector can be used or a closing loop detector must be fitted. In addition to sensing when the vehicle has passed the barrier for closing purposes, it will act as a safety loop preventing the boom pole from being lowered onto a vehicle present on the loop

FIGURE 39. ELECTRICAL WIRING

19. Free-exit loop - electrical connections



Option A: Free-exit single lane, unidirectional traffic (Refer to page 19)

All connections are made to the termination board and NOT the controller (Refer to page 30)

Please note the following:

- FRX: The free-exit loop detector must be fitted. The free-exit loop can be positioned any distance away from the closing loop, typically no less than 1000 millimeters, otherwise it may cause magnetic interference
  - Proceed to Menu level 6.3 and set the free-exit loop direction to UNI
- Safety Beam: Although not recommended, this input can be used if a closing loop detector is not fitted. It is recommended that two safety beams are used, which are spaced approximately 500 millimeters horizontally apart
- Close (closing loop): The FLUX OB onboard loop detector can be used or a closing loop detector must be fitted. In addition to raising the boom and sensing when the vehicle has passed the barrier for closing purposes, it will act as a safety loop preventing the boom pole from being lowered onto a vehicle present on the loop
- If FLUX OB is fitted, set the UNI-DIR FRX dipswitch to the ON position

FIGURE 37. ELECTRICAL WIRING

20. Setting up the limits and features for the SECTOR barrier

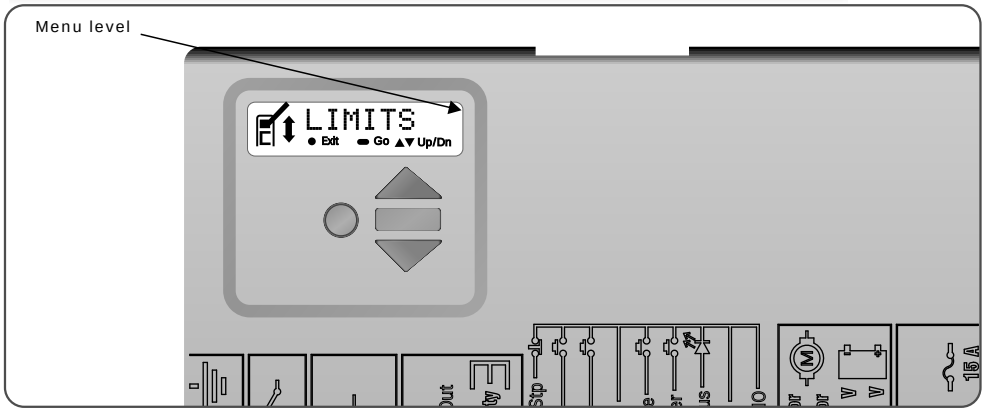


FIGURE 38. SECTOR CONTROLLER

Setting up the limits

When setting up the SECTOR barrier system via the LCD display, all the steps that have to be followed are clearly provided via the display. It is only necessary to note the following:

- Press and hold the oblong enter (▬) button for two seconds to enter Setup Mode
- If powering up for the first time (ex-factory), select the required profile that will suit the specific region
  (ZA - for South Africa, CE - for Europe and UL325 - for North America/Canada*)
- With this set, the system will automatically proceed to the limit setup menu. Follow the on-screen instructions to complete the setup procedure
- If powering up at any stage after this, press and hold the oblong enter (▬) button for two seconds
- Select the Limits Menu by pressing the oblong enter (▬) button. Follow the onscreen instructions to complete the setup procedure

* The profile is compliant with UL325, but the barrier is not certified

Setting up additional features for the SECTOR barrier

The SECTOR navigation map that follows, provides the full menu of features that can be set up on the system.

A brief explanation of each feature is provided in the section, ‘Controller features’.

When setting up additional features, all the steps that have to be followed are clearly provided via the display. It is only necessary to note the following:

- To get into Setup Mode, press the oblong enter (▬) button for two seconds and follow the onscreen instructions
- The buttons provided on the controller for navigating the system, are not marked because at each step during the setup, the function given to each button is provided on a new or defaulted controller, the LCD will display the default on the display

- When not in Setup Mode, ie Normal Mode, the round (●) button is used as a test button for operating the system. The up/down buttons are not used unless the diagnostic screens have been selected to appear in normal mode, in which case these buttons allow switching from one screen to the next
  - For each feature a Factory Default setting has been programmed into the controller. Referred to as an Operating Standard or Profile, these defaults have been determined to suit the requirements of the specific region where the installation is being carried out. It is only necessary to change a feature where the default does not suit the installation. When selecting any feature in the menu, details of the current setting stored in the controller are displayed
  - When selecting any of the features on a new or defaulted controller, the LCD will display the default value

21. SECTOR menu navigation map

1. Setting limits

1.1. Setup wizard

2. Safety
- 2.1. Collision force
  - 2.1.1. Raise collision force
  - 2.1.2. Lower collision force
- 2.2. Collision count
- 2.3. Alarm output
- 2.4. LCK input as ESTOP
- 2.5. External boom status indication
  - 2.5.1. Indicator output
  - 2.5.2. Lowered indication
  - 2.5.3. Partly lowered indication
  - 2.5.4. Lowering indication
  - 2.5.5. Partly raised indication
  - 2.5.6. Raising indication
  - 2.5.7. Raised indication
  - 2.5.8. Unknown indication

3. Autolower
- 3.1. Autolower status
- 3.2. Autolower timer
- 3.3. Autolower override
- 3.4. Autolower advanced
  - 3.4.1. Autolower fully raised
  - 3.4.2. Autolower partly raised
  - 3.4.3. Autolower partly lowered

4. Modes of Operation
- 4.1. Operating mode

5. Run profile
- 5.1. Lock boom at endpoints
  - 5.1.1. Lock when raised
  - 5.1.2. Lock when lowered
  - 5.1.3 Holding force
- 5.2. Raise when mains fail
- 5.3 Spike Interface
- 5.4 Pre-raising delay
- 5.5 Pre-lowering delay
- 5.6 Raising speed
- 5.7 Lowering speed
- 5.8 Ramp-up distance
- 5.9 Ramp-down distance
- 5.10 TRG stop distance
- 5.11 Loop stop distance
- 5.12 Crawl distance
- 5.13 Torque limit

- 6. Loop detector
- 6.1. ILAC control
- 6.2 ILD input to Aux Out
- 6.3. Rollback time
- 6.4. FRX loop direction
- 6.5. Inductive loop alarms
  - 6.5.1. Presence alarm
    - 6.5.1.1. Presence alarm status
    - 6.5.1.2. Presence time function
  - 6.5.2. Break-in alarm
  - 6.5.3. Alarm output

- 7. TVI output
- 7.1. TVI output function
- 7.2. TVI output polarity
- 7.3. Light timer
- 7.4. Light profile

- 8. ChronoGuard
- 8.1. Time and date
- 8.2. Time-periods
  - 8.2.1. Add Time-period
    - 8.2.1.1. Auto-function
    - 8.2.1.2. Time-bar function
  - 8.2.2. Delete Time-period
  - 8.2.3. Edit review Time-period
- 8.3. Exclusions
  - 8.3.1. Add exclusion
    - 8.3.1.1. Auto-function
    - 8.3.1.2. Time-bar function
  - 8.3.2. Delete exclusion
  - 8.3.3. Edit review exclusion
- 8.4. Delete all Time-periods and exclusions

- 9. General settings
- 9.1. Operating standard
- 9.2. Reset options
  - 9.2.1. Factory defaults
  - 9.2.2. Delete all remotes
  - 9.2.3. Delete all Time Periods and exclusions
  - 9.2.4. Reset all
- 9.3. Diagnostic screen status
- 9.4. Round test button status
- 9.5. Backup eeprom
- 9.6. Restore eeprom

10. Remote controls

Press button of valid transmitter *(if menu locked)*

10.1. Add remotes
10.2. Delete remotes
- 10.2.1. Delete by ID
- 10.2.2. Delete button
- 10.2.3. Delete by button
- 10.2.4. Delete-Not-Present
- 10.2.5. Delete all remotes

10.3. Edit remote button
10.4. Autolearn remotes
10.5. Tx menu locked
10.6. Onboard receiver enable/disable

22. SECTOR controller features

Menu 2 - Safety (collision force)

- Collision force

  The collision force can be set independently for raising or lowering from minimum to maximum in five discrete steps. A sixth step will disable collision sensing entirely, allowing maximum force to be achieved. The motor will only shut down when its stall point is reached. Stall level is adjustable, refer to Torque Limit under Menu 5.

The maximum force setting should only be used if additional safety measures are taken, for example, inductive loops, etc.

The response of the system to a collision will vary, depending on the Operating Standard (eg. CE, UL325*) selected

* Collision force setting satisfies UL325, but the SECTOR barrier itself is not certified

- Collision count

  The number of sequential collisions that the system will allow, before shutting down the controller, if the boom pole does not reach the lowered position. Counter resets each time the boom pole reaches lowered position. A valid trigger input will clear the shutdown

- Alarm output

  An alarm is activated if the multiple collision shutdown is triggered. This menu item configures the different alarm outputs

- LCK as ESTOP

  Allows the Lck (Holiday Lockout) input to be configured as an emergency stop input

- External boom status

  The gate status indication can be used to drive an external device such as a traffic light or Pillar Light by either producing a potential across the selected indicator or switching a dry contact.

  The following outputs can be configured as external indicators:

  - Pillar/Courtesy Light contact (potential-free normally-open contact, fuse protected – 5A)
  - Safety beam common (this is an open collector drive, max current draw 3A, not fuse protected)
  - Status LED output (operate up to three LEDs in parallel or interface with multi-LED driver card, CP78)
  - Aux. I/O (this is an open collector drive, max current draw 3A, not fuse protected)

  The conditions under which the selected output must be active can be configured according to the status of the gate, and more than one status can be selected simultaneously:

  - Open indication

- Partly open indication Opening indication
- Closing indication
- Partly closed indication
- Closed indication
- Pedestrian indication
- Unknown indication

An example of where the External Gate Status Indication will typically be used is where two D-Series operators have been connected for interlocking purposes, i.e. one cannot be operated while the other one is in motion. In such a case, the XIO of one operator will be connected to LCK of the other, XIO set as the desired indication, and the indication set to be ON only for a CLOSED status. Since LCK is a normally-closed circuit, when Operator 1 is triggered it will break the circuit and invoke Holiday Lockout in Operator 2; when Operator 1 then reaches the closed position again (since XIO has been configured to be active for CLOSED only), the circuit will be completed and Operator 2 will be allowed to operate.

Menu 3 - Autolower

- Autolower Status
  If enabled, the boom pole will automatically lower after a preset Autolower time
- Autolower Time
  The Autolower time can be set anywhere from 1 to 240 seconds (four minutes)
- Autolower Override
  Temporarily turn off Autolower. Activate and maintain the memory input for longer than the Autolower Override Time. Activate Memory input to clear the override.
- Autolower Advanced Options
  Set the conditions under which the boom pole will automatically lower. More than one condition can be selected:
  - Autolower on Raised - automatically lower the boom if boom pole is fully raised
  - Autolower on Partly Raised - automatically lower the boom pole if it has been stopped partially raised
  - Autolower on Partly Lowered - automatically lower the boom pole if it has been stopped partially lowered

Menu 4 - Modes of Operation

Refer to “Select Operating Mode” on page 17 for an explanation of the four different Modes of Operation available: Simplex, Complex, PLC and Spike.

Menu 5 - Run profile

Refer to “Select Operating Mode” on page 17 for an explanation of the four different Modes of Operation available: Simplex, Complex, PLC and Spike.

- Lock boom pole at endpoints:
  - Lock When Raised - mechanically lock boom pole in raised position. Use manual override key to override
  - Lock When Lowered - as per above for lowered position

The locking endstops must be accordingly set for locking to take effect. Refer to installation manual

- Holding Force - force used to automatically hold the boom pole in the raised or lowered position if “lock at endpoints” is not selected
- Raise When Mains Fail
  If enabled, the boom pole will raise in event of a mains power failure. Boom pole will remain raised until mains power is restored
- Spike Interface
  If enabled, this facility allows the SECTOR controller to communicate with co-installed roadway spikes, such as CLAWS.
- Pre-raising Delay
  Allows a delay between a valid trigger signal and the boom pole raising. Can activate warning light during delay if TVI is not selected. (Refer to pre-flash modes of the Courtesy Light feature, for more details.)
- Pre-lowering Delay
  Identical to above, except for boom pole lowering
- Raising Speed
  Sets the maximum raising speed in degrees per second
- Ramp-up Distance
  Sets the ramp-up distance in degrees
- Ramp-down Distance
  Sets the ramp-down distance in degrees of travel of the boom pole when stopping
- TRG Stop Distance
  Sets the distance over which a moving boom pole will stop after a trigger signal is received

- Crawl Distance
  Sets the final crawl distance in degrees of travel of the boom pole when reaching an endpoint
- Torque Limit
  Sets the maximum torque delivered by the motor. This is useful in cases where limited push force is required
- Loop Stop Distance
  Sets the distance over which a moving boom pole will stop after a safety input is triggered

Menu 6 - Loop detector

- ILAC (Inductive Loop Autoclose) Control
  Causes the boom to Autolower as soon as the closing inductive loop is cleared, ie. the vehicle moves off
- FRX (Free-exit) Loop Direction
  Allows a single access point with bi-directional traffic to make use of a free-exit loop. Due consideration must be given to closing and free-exit loop positioning
- Loop Alarms
  - While the boom pole is lowered, this feature allows the following alarms.
  - Presence Alarm - Activates an alarm if the closing loop has been continuously activated for a predefined time. The alarm will remain activated while the closing loop is activated
  - Presence Time - The time for which the closing loop must be continuously activated before the alarm is activated
  - Break-in Alarm - Activates an alarm if the closing loop is activated while the boom is lowered. The alarm remains active while the closing loop is activated, and for a period of 30 seconds thereafter. This time is fixed
  - Alarm Output - This menu item configures the different alarm outputs

Menu 7 - TVI (Ticket Vend Interlock) output

Configure TVI output for the specific purpose or as a Courtesy Light. If configured as a Courtesy Light, light will switch on for a timed period every time the boom is activated.

- TVI Output Polarity
  Configure output as a normally-closed (NC) or normally- open (NO) contact
- The TVI output when configured to Courtesy Light time
  The Courtesy Light time can be set from four seconds to ten hours
- The TVI output when configured to light profile
  Select operation of Courtesy Light according to four different modes

Menu 8 - ChronoGuard (Time-periods)(a world first)

ChronoGuard allows automatic activation or time-barring (prevented operation) of specific controller inputs, and the time-barring of specified remote control buttons used together with the onboard receiver. The Real Time Clock and Calendar will keep time for a minimum of one hour without any power.

- Time-periods
  A Time-period is defined by a start and end date and time. Up to 100 Time-periods can be defined. A Time-period can be set as a once-off event, repeated on a weekly or annual basis. The weekly repeat can be chosen to occur on every day of the week, weekdays only, weekends only, or any specific day. The minimum duration of a Time-period is one minute. Once-off Time-periods have the highest precedence, followed by annual and then weekly.
  - Auto-functions (Auto-activations)
    Activate automatically any of the following inputs/outputs during a Time-period

    Inputs
    - Barrier Raise
    - Barrier Lower
    - Barrier Disable (Lck) - also referred to as Holiday Lockout
    - Closing Loop (ILD)

    Outputs
    - Aux Out - this is a switching negative that can be used to drive an external relay for operating any eternal device
    - Aux IO - this is a switching negative that can be used to drive an external relay for operating any eternal device

- Time-barring
  Time-barring of inputs is divided into physical inputs and inputs mapped to a remote control button.
  The following physical inputs can be time-barred (prevented from operating) during a Time-period:
  - Barrier Raise
  - Barrier Lower
  - Memory Input (MI)
  - Non-memory Input (NMI)
  - Barrier Disable (LCK)

  The following physical outputs can be time-barred (prevented from operating) during a Time- period:
  - TVI (configured as a Courtesy Light Relay)

  The following remote control inputs can be time-barred (prevented from operating) during a Time-period:
  - Barrier Raise
  - Barrier Lower
  - Memory Input (MI)
  - Non-memory Input (NMI)
  - Barrier disable (LCK)

Time-barring of a CENTURION NOVA code-hopping transmitter is specified at the time of coding the transmitter into the system. Once an RF input is defined as time-barred, any time-barred transmitter associated with that input will be time-barred during the relevant Time-period. If a physical or RF input is currently time-barred, any attempt to activate it will be acknowledged by a short beep of the onboard buzzer. The input, however, will not activate

- Exclusions
  Exclusions are used to prevent scheduled Time-periods from occurring at specific times (eg. public holidays). While time-barring can be used to achieve a similar end, exclusions can also be used to exclude time-barring itself. Each exclusion consumes one Time-period. Exclusions have the highest precedence, followed by time-barring and then Auto-functions

Menu 9 - General settings

- Operating Standard

  Configure the controller to conform to the specific region's standard - e.g. UL325 or CE.

- Reset options
  - Factory Defaults - Restore only defaults for the operating standard / profile chosen, no other settings affected
  - Delete All Remotes - Delete all the remotes stored in the system; no other settings affected
  - Reset All – Clears the controller completely as per an off-the-production-line unit

Boom pole end-of-travel limits are not affected by any reset

- Diagnostic Screen
  Allows a diagnostic screen to be displayed.
- Round Test Button
  Disables operation of the round test button on the controller

Menu 10: Remote controls

Learn up to 500 CENTURION NOVA remote control transmitter buttons. Using one button as a shift button, each transmitter can operate up to six functions. Each transmitter learned into the system is assigned a unique transmitter ID. When adding transmitters, it is recommended that a record be kept of the ID number allocated by the system to each respective transmitter and the person to whom the transmitter is given. This is necessary should selective deletion be required at a later stage.

- Press button of valid transmitter
  If the remote controls menu has been locked as discussed later, only by pressing a button of a transmitter learned into the system, can this remote controls menu be accessed

- It is possible to artificially increase the number of buttons of a multi-button transmitter by using a two button combination
- One of the buttons is used as a shift button to allow the other buttons to be used again in combination with this button. In other words the user will press and hold the shift button, before pressing one of the other buttons to create a new button

- The shift button cannot be used as a button on its own, it must always be used in combination with the other buttons

Benefits of the shift button system:

- Use of the shift button system allows a three button transmitter to gain an extra button and operate four functions and likewise a four button transmitter gains two extra buttons and can operate six functions

- Another benefit of using the shift button system is that it requires both hands to operate the two button combination. This prevents the user from accidentally enabling sensitive functions such as Holiday Lockout on the controller
- Each transmitter learned into the system is assigned a unique transmitter ID.

- Add Remote
  Any button can be set to control the memory, non-memory, raise boom pole, lower boom pole and Holiday Lockout inputs
- Delete Remote
  Transmitters can be deleted at any stage according to one of the following:
  - Delete Remote by ID – Where a record of the unique ID has been kept, delete transmitter according to this
  - Delete Remote Button – Clear operation of a button on a particular transmitter
  - Delete Remote by Button - Delete a transmitter that is present
  - Delete-Not-Present - Allows a Time-period to be set in hours. Any remotes which have not been used in the Time-period will be deleted
  - Delete All Remotes – Clear the entire remote memory
- Edit Remote Button
  Move the function from one button to another. The transmitter must be present
- Autolearn
- Allows a Time-period to be set, during which any specific button will be learned to a specific function when it is pressed. The function will also be activated when the button is pressed. After the Time-period has expired, Autolearn is disabled, and no further buttons will be learned.
- Tx Menu Locked
  Lock the “Remote controls” menu and prevent unauthorized addition of new transmitters. Once enabled, the “Remote controls” menu can only be accessed by pressing a valid transmitter button

23. Diagnostics

Diagnostic LEDs

The SECTOR controller has a series of diagnostic LEDs which indicate the state of the inputs. Normally-open inputs are indicated by a red LED, and normally-closed inputs by a green LED. An illuminated red LED indicates that the signal is present (e.g. barrier raise pressed), while a non-illuminated green LED indicates that the signal is absent (i.e. IRB broken)

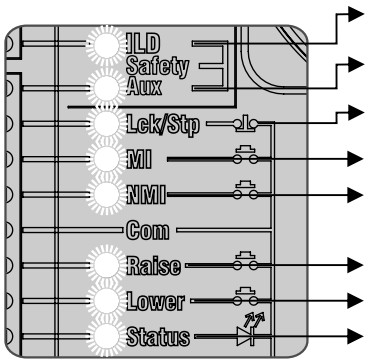


FIGURE 39

ILD - green: On when the Inductive Loop Detector output is not activated

Aux input - green: On when the Aux input is not activated

Lck/Stp - green: On when the Lck/Stp input is not activated

MI - red: On when the memory input signal is present

NMI - red: On when the non-memory input signal is present

Raise - red: On when a Barrier Raise signal is present

Lower - red: On when a Barrier Lower signal is present

Status- red: This LED indicates the status of the barrier as per the table below

SECTOR barrier status LED

Off	Barrier is lowered
On	Barrier is partially or fully raised
Continuous slow flash	Barrier is raising
Continuous fast flash	Barrier is lowering
One flash every two seconds	Pillar Light override is activated
Two flashes every two seconds	No mains present
Three flashes every two seconds	Battery voltage is low
Four flashes every two seconds	Multiple collisions have occurred

FLUX OB (SECTOR termination board) diagnostic LEDs

Power indicator LED

- This green LED is on when power is present, and the controller is functioning

Loop fault indicator LED

- This red LED is illuminated when there is a loop fault. If the loop is open circuit, the Fault LED will flash continuously. If the loop is short circuit, it will remain on

Detection level indicator LEDs

- These five red LEDs provide a visual indication of the Detection Level. Once all five LEDs are on, the detection threshold is almost reached. This is a very useful feature to determine if the loop is going to perform reliably. With no vehicle in the vicinity, all the LEDs should be off

Detect indicator LED

- This green LED indicator is illuminated when there is a vehicle detected. This LED can also be used to determine the loop frequency. Reset or power up, count the number of times the Detect LED flashes. Multiply the number by 10KHz. For example: if the LED flashes eight times, then the loop frequency is approximately 80KHz

LCD display

The SECTOR controller's LCD display shows valuable information regarding the status of the system.

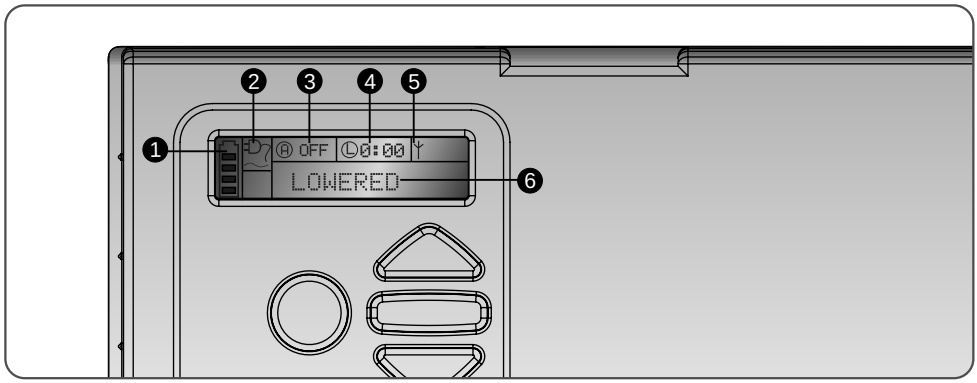


FIGURE 40. SECTOR CONTROLLER LCD

1. Battery icon
   Indicates the state of charge of the battery.
   - Four solid bars = full capacity
   - Two solid bars = 50% capacity
   - No solid bars, with the icon flashing = battery empty

2. Mains icon
   Displays the presence/absence of mains voltage:
   - Plug solid = mains present and battery charging
   - Plug hollow and flashing = No mains present and battery not charging

3. Autolower information
   - Displays the state of the Autolower function
   - Displays off if Autolower is not selected
   - OVR if Autolower is overridden, and the remaining Autolower Time if Autolower is active

4. Pillar Light/TVI information
   - Displays the remaining light time if Courtesy Light Mode is selected
   - Pre-flashing Mode is displayed if Pre-flash is selected
   - LIT will be indicated if the Pillar Light has been turned on permanently
   - TVI will be indicated if the TVI output has been configured

5. Onboard receiver information
   Displays the current input being activated by the onboard receiver.

6. Status information
   Displays useful information regarding the status of the barrier.

Buzzer feedback

A warning buzzer will sound (where applicable) as per the table below:

Inhibitor name	Priority	Number of beeps	Fault type	Gate continues to operate	User can correct error
Break-in alarm	1	Continuous tone for 30 seconds	Alarm	N/A	N/A
Presence alarm	2	Continuous tone until ILD is cleared	Alarm	N/A	N/A
Battery low	3	3 beeps periodically for 30 seconds	Power system fault	Yes*	Yes
Multiple collision	4	Periodic until condition is cleared by user (500/500ms)	Collision	No	Yes
Auxiliary overload	5	5 beeps periodically for 30 seconds	Hardware	No	No
Holiday Lockout	6	1 beep periodically for 30 seconds	User	No	Yes
Emergency stop	7	1 beep periodically for 30 seconds	User	No	Yes
Time-barring	8	1 beep periodically for 5 seconds	User	No	Yes
No limits set	9	3 short beeps for 5 seconds	Lost	No	Yes
Mains failure	10	2 beeps periodically for 30 seconds	Power system fault	Yes	Yes
ILD broken	11	1 beep periodically for 30 seconds	User	No	Yes
DOSS disconnected	12	5 beeps periodically for 30 seconds	Hardware	No	No
Fuse blown	13	5 beeps periodically for 30 seconds	Hardware	No	Yes
Motor disconnected	14	5 beeps periodically for 30 seconds	Hardware	No	Yes
Bridge damaged	15	5 beeps periodically for 30 seconds	Hardware	No	No
Barrier stalled	16	4 beeps periodically for 10 seconds	Collision	No	Yes

* Gate will close fully and then shut down for two minutes

24. Factory defaults schedule

South African standard profile - ZA

Parameter Description	Unit	Minimum	Default	Maximum
Menu 1 - not applicable				
Menu 2				
Raising collision force	Level	1	3	Max
Lowering collision force	Level	1	3	Max
Collision count	Collisions	1	4	255
Alarm output	B, T, A, X, L		Buzz	
LCK as ESTOP	Yes or No		No	
Menu 3				
Autolower status	On/Off		Off	
Autolower time	Mm:ss	00:00	00:30	4:00
Autolower override time	Mm:ss	00:00	00:01	00:15
Autolower on raised	On/Off		On	
Autolower on partly raised	On/Off		On	
Autolower on partly lowered	On/Off		Off	
Menu 4				
Modes of Operation	S, C, P, SP		CMX	
Menu 5				
Lock when raised	Yes/No		No	
Lock when lowered	Yes/No		No	
Holding force	%	10%	50%	100%
Raise when mains fail	On/Off		On	
Pre-raising delay time	Mm:ss	00:00	00:00	01:05
Pre-lowering delay time	Mm:ss	00:00	00:00	01:05
Raising speed	Deg/sec	10 deg/sec	37 deg/sec	Max
Lowering speed	Deg/sec	10 deg/sec	37 deg/sec	Max
Ramp-up distance	Deg	3 deg	7 deg	15 deg
Ramp-down distance	Deg	3 deg	7 deg	15 deg
TRG stop distance	Deg	5 deg	10 deg	30 deg
Loop stop distance	Deg	5 deg	10 deg	30 deg
Crawl distance	Deg	1 deg	1 deg	5 deg
Torque limit	A	5A	15A	15A

South African standard profile - ZA

Parameter Description	Unit	Minimum	Default	Maximum
Menu 6				
ILAC control	On/Off		Off	
Rollback time	Mm:ss	00:01	00:10	00:15
FRX loop direction	Uni/bi		Uni	
Presence alarm status	On/Off		Off	
Presence time	Mm:ss	01:00	01:00	04:00
Break-in Alarm	On/Off		Off	
Alarm output	L, X, A, T, B		LED	
Menu 7				
TVI output function	TVI or CUR		TVI	
TVI output polarity	N/O or N/C		N/C	
Light timer	Hh:mm:ss	00:02:00	00:02:00	09:59:59
Menu 8 – Not applicable				
Menu 9				
Diagnostic screen status	On/Off		Off	
Round test button	On/Off		On	
Menu 10				
Delete not present	On/Off		Off	
Autolearn	On/Off		Off	
Tx menu lock	On/Off		Off	
Onboard receiver	On/Off		On	

25. Description of terminal functions

24V +	Positive battery connection. Battery terminal normally indicated as + or red (right hand)
24V -	Negative battery connection. Battery terminal normally indicated as - or black (left hand)
Motor	Motor output – connects to the thick blue motor wire
Motor	Motor output – connects to the thick black motor wire
Aux IO	The Aux IO terminal provides an open collector output which can be used for alarm or auto function purposes. If the collision alarm output or the Presence Alarm output has been configured to Aux IO, then the negative of the alarm device must be connected to this terminal. The positive of the alarm device must be connected to the Aux 12V Out terminal. Similarly, if Aux IO is auto-activated via a ChronoGuard auto-activation Time-period, the device being switched (typically a 12V relay) must be powered from the Aux 12V Out terminal, and have its negative switched by Aux IO. If the Aux IO has not been selected as either an alarm indicator output or auto-activated output, the Aux IO terminal will behave as a Com termination point. All trigger signals, etc., have their return path to one of the Com terminals
Com	The common termination point. All trigger signals, etc., have their return path to one of the Com terminals
Status	External boom status indication. (A low current output signal). An output terminal which provides a low current drive (approximately 4,5V DC, 20mA) to a LED which can be used to indicate the boom status remotely. If more than three LEDs are required it is necessary to fit the CP78 multi-LED driver card
Aux	The lowering input. (A normally-open potential-free input). Momentarily connecting this input to Com will cause the boom pole to immediately lower regardless of which position it is in, unless it is already fully lowered
FRX	The raising input. (A normally-open potential-free input). Momentarily connecting this input to Com will cause the boom pole to immediately raise regardless of which position it is in, unless it is already fully raised
Com	The common termination point. All trigger signals, etc.; have their return path to one of the Com terminals
NMI	The non-memory input. (A normally-open potential-free input). This input is used to obtain a trigger signal. Momentarily connecting the input to Com will cause the boom pole to raise, stop or lower depending on the operating mode selected. Each trigger impulse received will cause the barrier to react accordingly

MI	The memory input. (A normally-open potential-free input). The memory input counts and stores each trigger impulse. The boom pole will stay raised until the same number of closing signals is applied to the closing input, such as the closing loop. This input is typically used in conjunction with the Complex (CMX) Mode of Operation
LCK/STP	Holiday Lockout or boom stop input. (A normally-closed potential-free input). For as long as a connection between this input and Com is maintained the controller will behave normally, but when the connection to Com is broken all inputs are inhibited
ILP	The inductive loop detector input. (A normally-closed potential-free input). As long as a connection between this input and Com is maintained the controller will behave normally. When this connection is broken, i.e. a vehicle drives onto the inductive ground loop, it will prevent the barrier from lowering if it is stationary, and will stop and raise the barrier if it is lowering
Aux 12V Out	Auxiliary power connection. Provides +12V DC supply for auxiliary equipment such as a radio receiver, photo cells, etc. It is electronically limited to 300mA
TVI/TVI	Ticket Vending Interlock. These two terminals provide a normally-open potential-free contact which is generally used to introduce an electronic “lock” to ticket vending devices, meaning that tickets cannot be dispensed while the boom pole is raised or raising. Alternatively, the terminals can be used to connect a courtesy or security light which will illuminate whenever the barrier is operated Com will cause the boom pole to raise, stop or lower depending on the operating mode selected. Each trigger impulse received will cause the barrier to react accordingly

26. Faultfinders guide

Symptom	Possible cause	Solution
Barrier does not move	• Blown fuse • Battery low, faulty or disconnected • Latched input on MI/NMI/Raise/Lower • Incorrect spring tension	• Replace the 30A ATO fuse • Refer to the battery charge level on the diagnostic screen – replace if necessary. See Procedure A. • Ensure that there are no auto-activations set for these inputs that are still in effect. Refer to the matrix in the diagnostic screen showing auto-activations • The diagnostic screen will display how many turns is necessary to achieve optimum spring tension and in which direction the nut must be turned. When the ideal spring tension is reached, a zero will be displayed
Boom pole moves a short distance and stops	• Battery low condition • False collision condition • Faulty or disconnected DOSS • Excessive play on the gearbox • Primary drive-arm is loose on the output shaft	• Check physical condition of battery and terminals; check battery charge state and charging voltage on diagnostic screen. See procedure A. • Ensure that nothing is hindering the trajectory of the boom pole • Replace faulty DOSS or reconnect unplugged DOSS connections • Tighten drive-arm or contact local CENTURION agent • Contact local CENTURION agent to service gearbox
Boom pole starts lowering, then abruptly stops and raises again	• Collision sensitivity set too high • False collision condition	• Adjust collision sensitivity to a MEDIUM or LOW setting • Check for physical obstructions
Controller cannot be set to Auto-lower, the Auto-lower status automatically reverts back to “Off”	• Controller is set to “Complex” mode	• Depending on the application, set the controller to “Simplex” mode

Procedure A - Low battery voltage condition

Status light flashes three times – LCD indicates battery low
If the battery voltage is less than 13.5V DC, the barrier will not operate at all. For any other voltage, the battery could still be the cause of the problem. Is the battery being properly charged?

- Check the “Mains Present” icon on the main diagnostic screen or switch to the battery charger diagnostic screen and check the charging voltage – right hand voltage. This should indicate XV
- Check that the mains power is turned on (check 220-240V AC on the mains connector)
- Check that the red LED on the side of the charger is lit
- Check the charger’s supply fuse
- Check that the white battery charger connector is making proper contact
- Check the condition of the battery leads, terminals and connectors. Look for and correct all loose connections and signs of corrosion
- The battery might be discharged. Measure the battery voltage with the charger connected, if the voltage is below 13.5V then the battery is discharged. The number of raising cycles per hour may be excessive, thus discharging the battery
- The charger may be faulty. Disconnect the battery and measure the voltage on the battery leads. It must be between 13.6V and 13.8V. If not, replace the charger
- The battery might be old, and might have to be replaced. If in doubt test as follows:
- Check that the battery is charged, by ensuring that the battery voltage is above 13.5V with the charger connected. (If the battery is in a good condition it would probably pass the test without being fully charged)
  - Disconnect the charger from the battery
  - Remove the DC Motor leads from the DC Controller
  - Apply the DC motor leads directly to the battery, while measuring the battery voltage
  - If the problem is not solved replace the DOSS sensor and main controller

Procedure B - False collision detection

Status light flashes four times to indicate that number of collisions have exceeded the Collision Counter feature value. LCD screen indicates “Max Collisions”

With the operator in manual mode, check the following and correct if necessary:

- That the boom pole can be easily raised or lowered by hand and does not stick or jam at any stage
- That the spring tension is correct. A handy diagnostic screen, complete with graphic representation, can be found by scrolling upwards. This will tell you exactly how many turns of the spring tensioner are needed and in which direction, be it clockwise or counter-clockwise
- That there is not excessive play on the gearbox
- That the primary drive-arm is not loose on the output shaft
- Check the DC motor wires for any loose connections
- Ensure that the DOSS sensor wire harness is securely plugged into the controller
- Ensure that the DOSS sensor is securely clipped into the housing
- If the problem is not solved, replace the DOSS sensor and main controller

27. Ancillary equipment

A number of additional devices are available which can be interfaced with the SECTOR traffic barrier to increase security or otherwise enhance the installation.

SECTOR breakaway coupling

The SECTOR breakaway coupling is a handy boom coupling that minimises damage to the boom pole by causing it to swing away to the side if struck by a vehicle. The breakaway coupler incorporates a micro-switch which is connected to the emergency stop input, meaning that the SECTOR will be barred from operating the moment that the micro-switch is unclipped. This significantly reduces the chance of further damage to the barrier.

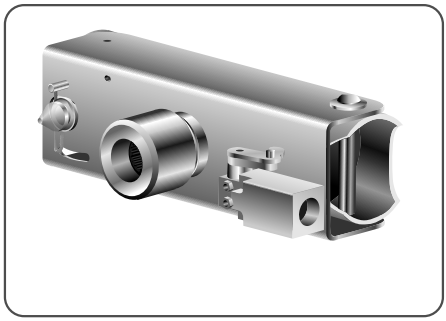


FIGURE 41. BREAKAWAY COUPLING

SECTOR jack-knife assembly

Some installations may require – due to a particularly low ceiling or similar hindrance which has diminished overhead space as a consequence – that the boom pole bend at an angle to allow for sufficient clearance when raising. A jack-knife assembly can be fitted to an existing boom pole which will allow the boom bole to bend at an angle by means of a metallic “knuckle”, and to become level again when in the lowered position.

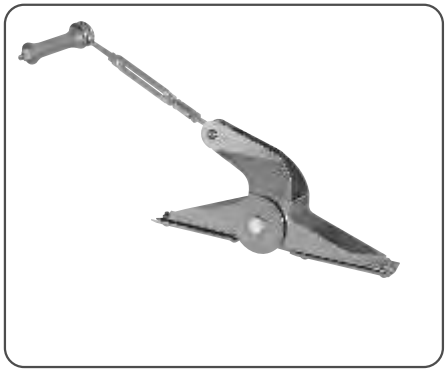


FIGURE 42. JACK-NIFE ASSEMBLY

TRAPEX

TRAPEX is a barrier fence that can be fitted to the SECTOR barrier boom pole (3m and 4.5m poles only) to facilitate pedestrian access control. The fence consists of a series of vertical poles which not only cover the area beneath the boom pole but also extends past the boom pole, meaning that the boom cannot be skirted. A link arm assembly prevents the boom from being pushed aside.

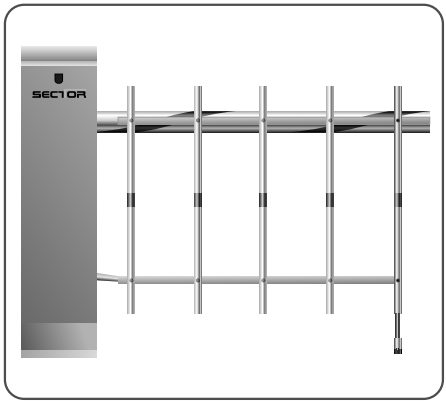


FIGURE 43. TRAPEX

CLAWS

CLAWS are modular barrier spikes designed to significantly enhance the security of an entry or exit. The CLAWS can be interfaced with the SECTOR traffic barrier in a direct drive configuration via the barrier's external status output, i.e. the spikes will raise when the boom pole lowers etc. An independent drive configuration is also available, meaning that the CLAWS will operate independently from the co-installed SECTOR barrier. Also note that flush and surface mount variants of CLAWS are available.

CLAWS are highly effective in cases where optimum security and access control are required.

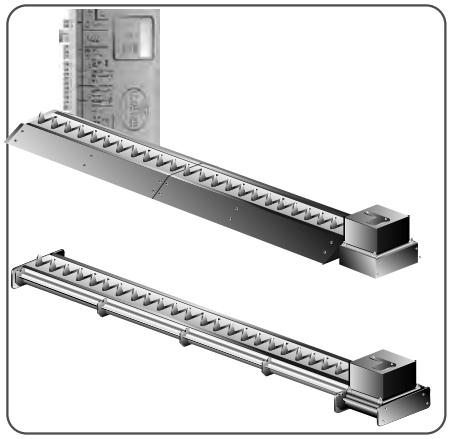


FIGURE 44. SURFACE AND FLUSH 3MOUNT CLAWS

FLUX 11

In addition to the onboard inductive vehicle loop detector that is supplied with the SECTOR controller, a stand-alone 11 pin detector can also be installed to add an extra level of safety to any installation. The FLUX 11 is a single-channel, stand-alone highly sensitive inductive loop detector designed for vehicle access applications. The unit can be integrated into an existing SECTOR installation by plugging it into one of the 11 pin connectors, and used in conjunction with either a closing (safety) loop or a free-exit loop.

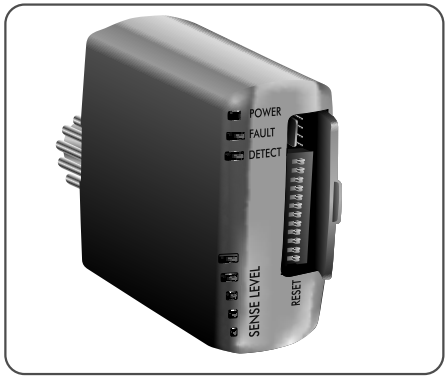


FIGURE 45. FLUX 11

Midi Traffic Light

The CENTURION Midi Traffic Light enables you to visually indicate when it is safe for a vehicle to proceed into or out of an access controlled area, allowing for an added element of safety and control

FIGURE 46. Midi Traffic Light

For more information on the SECTOR breakaway coupler, TRAPEX, CLAWS, FLUX 11 or any other CENTURION-supported products, please refer to the documentation included with the respective products or contact Centurion Systems directly.

28. Installation handover

Once the installation has been successfully completed and tested, it is important for the installer to explain the operation and safety requirements of the system.

NEVER ASSUME THE USER KNOWS HOW TO SAFELY OPERATE AN AUTOMATED BARRIER!

Even if the user has used one before, it does not mean he knows how to SAFELY operate it. Make sure that the user fully understands the following safety requirements before finally handing over the site.

The following needs to be understood by the user:

- How to operate the manual release mechanism. (Show them how by demonstration)
- How the safety loops and all other safety features work. (Show them how by demonstration)
- All the features and benefits of the operator, i.e. Safety loops, etc.
- All the safety considerations associated with operating an automated barrier. The user should be able to pass this knowledge on to all other users of the automated system and must be made aware of this responsibility.

- Do not activate the barrier unless you can see it and can determine that its area of travel is clear of people, pets, or other obstructions
- NO ONE MAY GO UNDER A MOVING BARRIER. Always keep people and objects away from the barrier
- NEVER LET CHILDREN OPERATE OR PLAY WITH THE BARRIER CONTROLS, and do not allow children or pets near the barrier area
- Be careful with moving parts and avoid close proximity to areas where fingers or hands could be pinched
- Secure all easily accessed barrier operator controls in order to prevent its unauthorized use
- Keep the automated barrier system properly maintained, and ensure that all working areas are free of d objects that could affect the its operation and safety
- On a monthly basis, check the obstruction detection system and safety devices for correct operation
- All repair and service work to this product must be done by a suitably qualified person

This product was designed and built strictly for the use indicated in this documentation. Any other use, not expressly indicated here, could compromise the good condition/operation of the product and/or be a source of danger!

Centurion Systems (Pty) Ltd does not accept any liability caused by improper use, of the product, or for use other than that for which the automated system was designed.

Ensure that the customer is in possession of the User Guide and that you have completed the installation details in the back of the manual.

Notes

CENTURION

0.07.A.0012 SECTOR
Installation manual

www.centsys.com